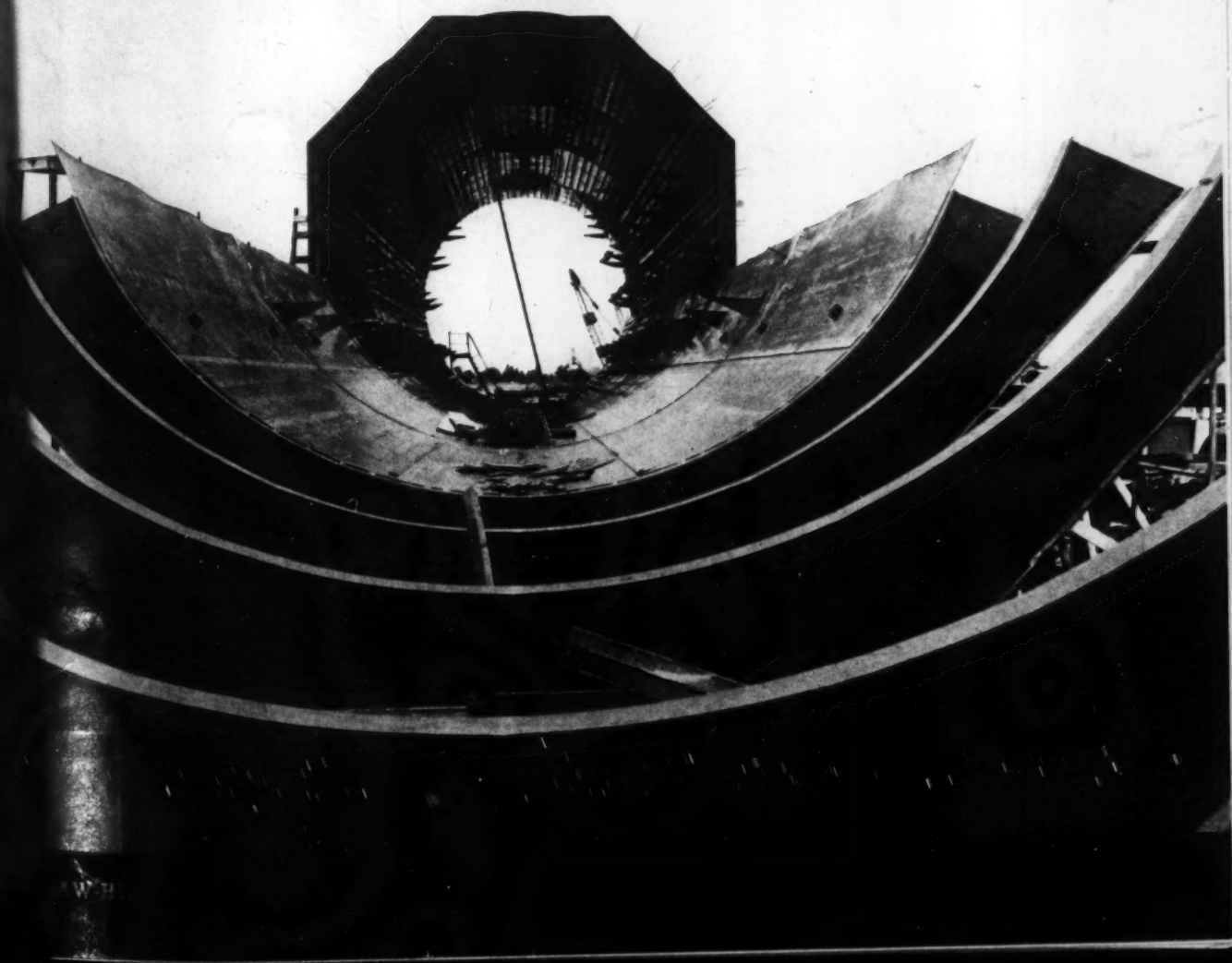
NEWS

...section for Mobile's two-lane subaqueous vehicular tunnel—see p. 4



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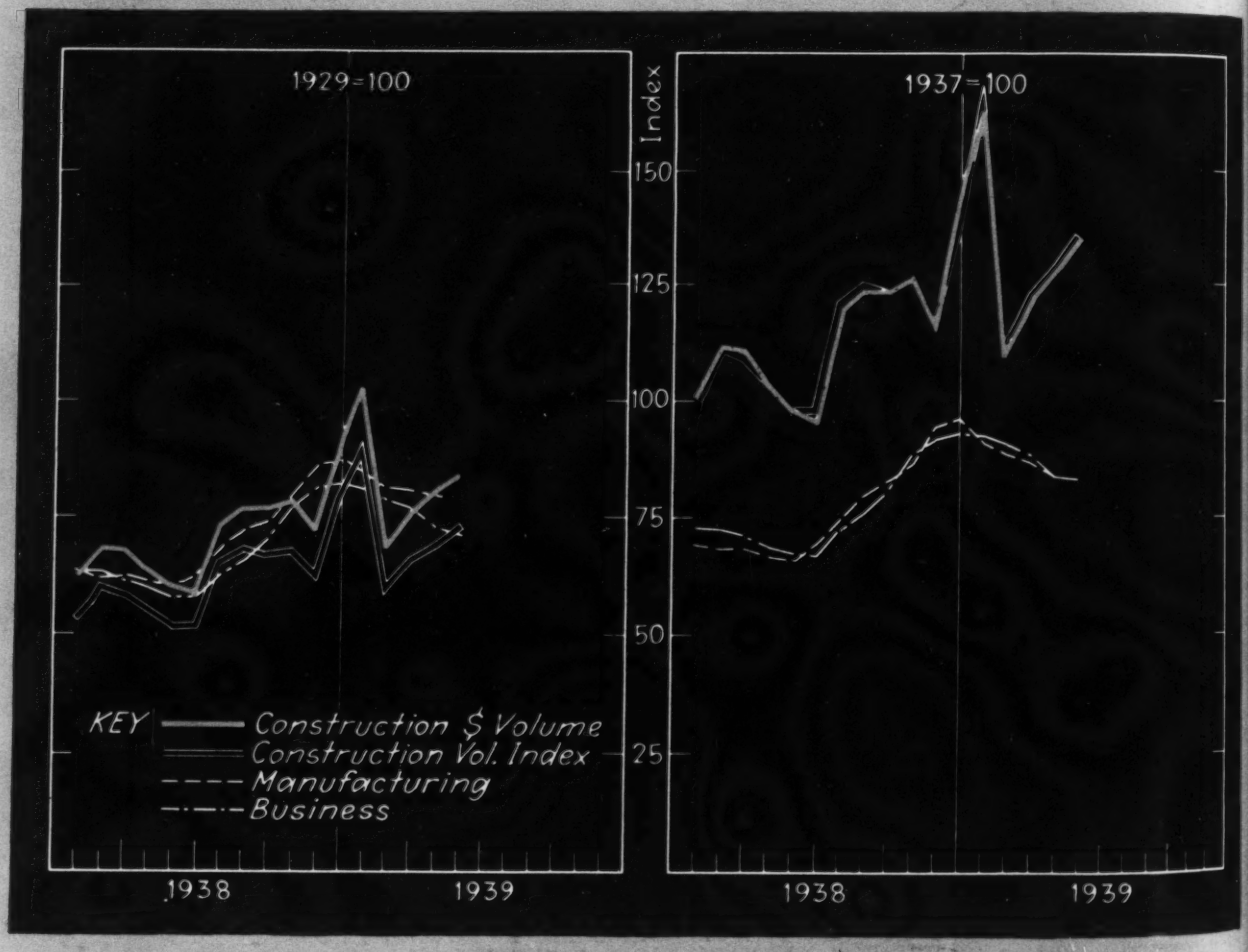

ENGINEERING NEWS-RECORD
CONSTRUCTION METHODS AND EQUIPMENT

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ENGINEERING NEWS-RECORD

NEWS

Volume 123 AUGUST 10, 1939 Number 6

NOTEBOOK NEWS

Quick Surveys of Construction Events

▶Rejection by Congress of the works financing bill was the spectacular news of last week. Political in inception, the bill met a political death. Informed opinion holds that the effect on construction will be good rather than bad, that time is now available for sober discussion of low interest government loans as contrasted to loans and grants and of toll highways as against federal aid for free roads.

▶No additional money for the USHA to use as loans and subsidies for municipal housing projects, was another last minute decision of Congress. It will have no immediate effect on construction since only a small part of the existing fund has been spent, although all of it is earmarked.

▶The strike on the Green Mountain Dam project in Colorado, which ended with a gun and rock battle, is said to be part of a campaign to put all such federal projects on a closed-shop basis.

▶Bids for nearly three more miles of the Chicago subway are to be opened this month.

▶Settlement of the pile foundations of the Charity Hospital in New Orleans could only have been avoided by digging a cellar 60 ft. deep and thus removing excavation weighing as much as the building, says Karl Terzaghi in his report as consultant. See p. 2.

▶When Connecticut put a toll on its Merritt Parkway, Westchester County, N. Y., threatened to retaliate with tolls on its Hutchinson River Parkway. The threat was made good this week.

Four Tunnel Workers Killed in Pennsylvania

A boulder falling from the ceiling in a tunnel being driven at Laurel Hill killed four workers August 5, on the Pittsburgh-Harrisburg express highway in Pennsylvania being built by the Pennsylvania Turnpike Commission. The boulder, estimated to weigh between 20 and 30 tons, dropped onto a drill jumbo about 800 ft. from the portal. There had been no dynamiting during the day.

A representative of the contractor, the Hunkin-Conkey Construction Co. of Cleveland, stated several different schemes for steel shoring were submitted to the commission for approval but no method was accepted.

Pennsylvania's department of labor has charged the commission with negligence, and Lewis G. Hines of the department will make a personal investigation of the accident and working conditions on the entire project.

Work has been shut down on the tunnel. Total fatalities to date on the entire highway project number seven.

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Toll Collections to Start On Westchester Parkway

The Board of Supervisors of Westchester County, N. Y., voted Aug. 7, to impose a 10-cent toll on the Hutchinson River Parkway, collections of toll to be started about Aug. 18. The charge of toll is in retaliation against Connecticut, which has put a toll charge on its Merritt Parkway.

Plans were considered whereby residents of Westchester County would be given special commutation rates or allowed to use the parkway toll free, but the final ruling is that no motorists going through Hutchinson River Parkway toll gate will be exempt from payment of the toll.

Dam Strike Ended In Colorado

Work resumed Aug. 4 at Green Mountain Dam after state troops intervene

On Aug. 4 work was resumed on the Green Mountain Dam tunnel work in Colorado after state troops stopped a gun and rock-throwing battle between striking union workmen and unaffiliated non-strikers. The job, part of the Bureau of Reclamation's Colorado-Big Thompson irrigation and power project, has been shut down since July 12, and fear was expressed that the shale in the fully-excavated but only half-lined diversion tunnel might collapse and cause serious delay to the work.

In the fighting, in which 6 men were wounded, none fatally, local residents siding largely with the non-union workers drove the union men from their picket lines and repulsed several truck loads of union sympathizers recruited from the outside. Officials state that less than one-fourth of the workers on the job were affiliated with the four AFL unions.

Basis of the controversy is neither wages nor working conditions but insistence on the part of the union that the contractor let the union control the

(*Continued on p. 2*)

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Indianapolis May Purchase Private Water Company

Public meetings are now being held and final action is expected soon on the proposal of a large group of Indianapolis citizens that the city purchase the water supply system owned by the Indianapolis Water Co. A figure of $21,000,000 is being considered as the purchase price. Negotiations have been carried on since last November.

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Hospital Settlement Held Inevitable

Terzaghi holds settlement of New Orleans hospital not due to inadequate piles support.

The foundation settlement experienced on the 20-story Charity Hospital in New Orleans does not involve any unusual features nor is there the "remotest possibility for the settlement to be due to inadequate bearing capacity of the piles" reports Karl Terzaghi, consulting foundation specialist, who was hired by the hospital board to investigate the site. His report was made in April but, because observations and studies continued subsequently, it was not made public until now. During July, Terzaghi informed the architects, Weiss, Dreyfus & Seiferth, that nothing had been observed which would cause him to change the views expressed in his earlier report.

The significant conclusion of the report may be summarized as follows: The settlement is essentially due to the gradual consolidation of beds of clay located at a considerable depth beneath the points of the piles, so that even if the piles had been driven through an upper sand stratum into the top layer of the brown sand at a depth of about 58 ft. below street level, the building would have settled in the same fashion and practically as much as it did on the existing pile foundation. Terzaghi says that there are scores of buildings in every country which have settled in the same fashion, but much more than the Charity Hospital.

In his report Terzaghi estimates that about 80 per cent of the settlement due to consolidation has already taken place. Since supplementary settlement will result from an almost imperceptible plastic flow of the loaded clay, its time rate will be a very small fraction of the initial time rate. However, since this settlement may continue for years it is important for the structural engineers to take it into account. As to the cracking of the building which has already occurred, the report states that very little could be gained by further delaying the repair of the visible defects. (Prof. Hardy Cross, structural consultant, whose report appeared in abstract in our July 27 issue, p. 113, recommended that the only structural change necessary is that the columns supporting girders over the chapel be reinforced.)

As to whether the settlement could have been avoided, Terzaghi states that the only one possibility available at a reasonable expense would have been the construction of cellars with a depth up to 60 ft. below street level and with such dimensions that the weight of the excavated material would have been about equal to the total weight of the building.

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Green Mountain Strike

(Continued from page 1)

hiring and firing of workers and that a contract to that effect be signed with a minority group. Back of the strike, which was declared illegal because 30 days' notice of intent to strike was not given as required by Colorado law, is said to be a move to make all federal projects closed-shop. Colorado-Big Thompson district officials want local labor, which is largely non-union, used by the contractor.

Engineering Congress Announces Program

Details of the program for the British-American Engineering Congress to be held in New York Sept. 5–8 are given in the August issue of *Civil Engineering*. Participating organizations are the Institution of Civil Engineers and the Institution of Mechanical Engineers (Great Britain), the Engineering Institute of Canada, the American Society of Civil Engineers and the American Society of Mechanical Engineers. Headquarters for the civil engineering group will be at Columbia University where the university has put dormitories, faculty clubs and lecture halls at the disposal of the congress.

The general meeting of the civil engineering group will open Tuesday morning Sept. 5 with a discussion of the professional status of the civil engineer in which representatives of the British, Canadian and American societies will speak. Wednesday and Thursday mornings will be given over to concurrent technical sessions devoted to construction methods and equipment, modern highway practice, parkways, airports, sanitation and water supply, soil mechanics and foundations, advances in the use of electricity and structural design. All the groups will meet for a joint session Friday morning at which Charles F. Kettering will be the principal speaker.

Afternoons will be given over to trips of inspection to the New York World's Fair and points of engineering interest. There will be a banquet and dance at the Waldorf Astoria Wednesday evening. Programs can be obtained from the societies, 33 West 39th Street, New York City.

STEEL ERECTION FINISHED ON NEW AIRPLANE ENGINE PLANT

LESS THAN THREE WEEKS after field work began on the new Indianapolis plant of the Allison Engineering Division of General Motors Corp., steel construction of the framework was completed. The plant is said to be the aviation industry's first in which light, heat, air, etc., are completely controlled. The Austin Co., Cleveland, is designer and builder.

The new plant, having more than a quarter million square feet of floor area, will be devoted to the manufacture and development of high-powered liquid-cooled aircraft engines; it will be ready for occupancy by fall. Air conditioning, acoustical walls and complete light control giving uniform illumination 24 hours a day, will provide ideal working conditions. The plant will be entirely welded.

Oklahoma Governor Attempts to Stop Dam Job

Oklahoma's Governor Phillips has asked that Secretary of War Woodring stop construction on the Denison Dam project on the Red River until adequate provision is made to protect and reimburse Oklahoma for losses it will suffer.

A suit by the state is expected to follow if the government fails to heed the protest. The reservoir to be created will flood about 100,000 acres of rich bottom lands in Oklahoma and a smaller amount in Texas.

In his demand Governor Phillips stated: "Oklahoma objects to the diversion of her waters into the state of Texas, there to be appropriated to uses unconnected with the state of Oklahoma and without any benefit to the state of Oklahoma. The state of Oklahoma protests and objects to the destruction and taking of the state's highways and bridges and to the resultant crippling and destruction of several units of government in the proposed reservoir area."

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Metal Culverts Are Not Bridges In Canada

The Tariff Board of Canada has ruled, following an appeal by the engineers of the Ontario government, that metal culverts are not bridges and are therefore not subject to sales tax as ordinarily applied by the federal government.

The board, in upholding a previous decision of the National Revenue Department, held that a bridge was a structure built for the purpose of carrying a roadway across a depression or obstacle, whereas a culvert merely carries water under a roadway from one side to the other.

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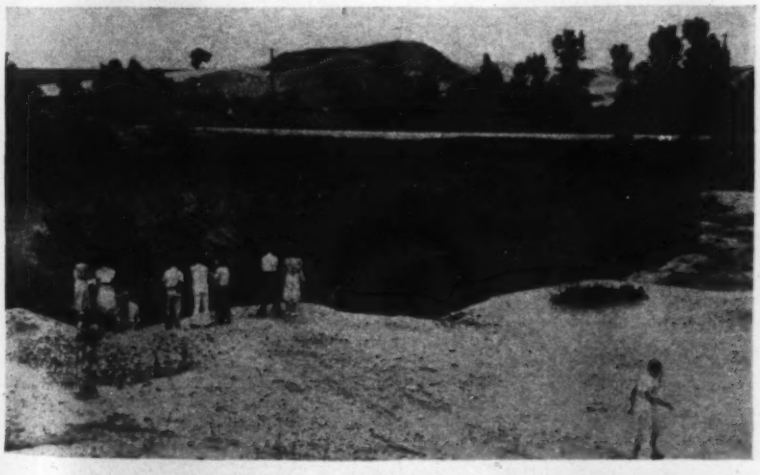
Galveston Board Advised Suspension Bridge Best

To span the main harbor entrance on Bolivar peninsula between Galveston and Bolivar, Texas, a long span suspension bridge has been recommended as most economical by C. C. Washington, county engineer, in reporting to the Commissioners Court of Galveston County. The proposed bridge would cost about $9,500,000, plus an additional $2,000,000 if the route goes by way of Pelican Island.

Washington recommended that for the immediate present the ferry service now available should be extended by purchasing two additional ferry boats and by constructing new landings, the boats and landings to cost roughly $600,000. Washington ended his report recommending "that nothing be disregarded or left undone that may enable construction of a tube or bridge as soon as possible."

A. S. Bergendahl, Houston engineer, has submitted plans covering a tunnel which he estimates would cost $8,500,000 and would be used by 3,000 to 3,500 vehicles daily.

Wayne F. Palmer of Wilberding & Palmer, consulting engineers on the Mobile, Ala., tunnel, estimates the cost of a Galveston tunnel as $8,500,000 or $9,000,000, but recommends that a traffic survey is necessary as a first step.



MINE CAVE-IN HALTS TRAFFIC ON MISSOURI ROAD

A CAVE-IN of an old lead and zinc mine recently halted traffic on U. S. Highway No. 66 one mile west of Joplin, Mo. The mine had been abandoned more than 20 years, and pumping water from nearby mines is believed to have caused the settlement. Maximum settlement was estimated at 140 feet and the highway may have to be rerouted some distance to the side.

New Locks Planned For Panama Canal

Additional set of locks to cost $277,000,000 authorized by Congress last week

Construction of an additional set of locks for the Panama Canal at a total cost of $277,000,000 was authorized by Congress last week. No money was appropriated, and actual construction will have to wait upon passage of an appropriation act, probably at the next session.

Although studies indicate that the normal needs of commercial traffic would not dictate beginning construction of the additional locks until 1955, the work is authorized now because it is felt that provision of a parallel set of locks will give added protection against aerial bombardment.

The bill limits possible appropriations during the first year of work to $15,000,000, and thereafter expenditures will rise, according to present schedules, to a peak of about $65,000,000 per year to bring the work to completion in six years. Preliminary studies, including foundation explorations, have been completed; these have been going on in leisurely fashion for several years, with the idea of spreading them out over about ten years, but were speeded up last fall when the defense question arose. The governor of the canal has funds on hand to complete the detailed designs, and this work will be proceeded with at once.

The plan adopted is the so-called "bypass project" under which the new locks will be placed a quarter to half a mile from the existing locks and connected to the canal by converging bypass channels. The locks will be built 1,200 ft. long, 135 ft. wide, and with a navigable depth of 45 ft. The approach channels will have a minimum width of 300 ft. and a depth at low water of 40 ft.

E. S. Randolph, designing engineer, has been in immediate charge of the design of the locks.

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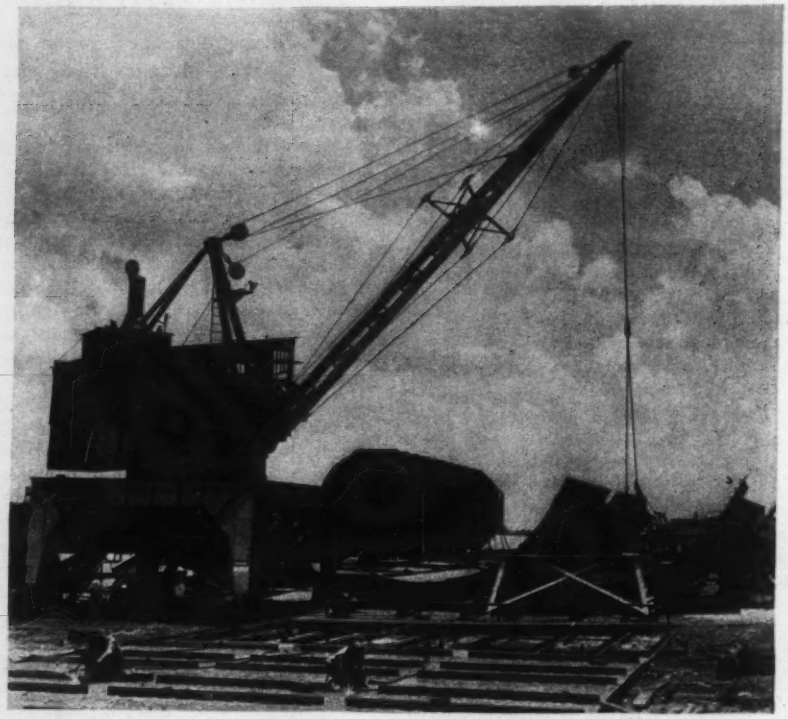
Pennsylvania To Sue Driver For Destroying Bridge

A suit seeking damage for the collapse of the bridge over the Juniata River 25 miles east of Altoona is to be filed against the driver whose trailer truck crashed into the end post of the bridge, causing the bridge's collapse and the death of three people. (See *ENR*, July 27, 1938, p. 7.) Lamont Hughes, secretary of the Pennsylvania Highway Department, started the legal proceedings.

Building 34 Ft. Tunnel Sections at Mobile

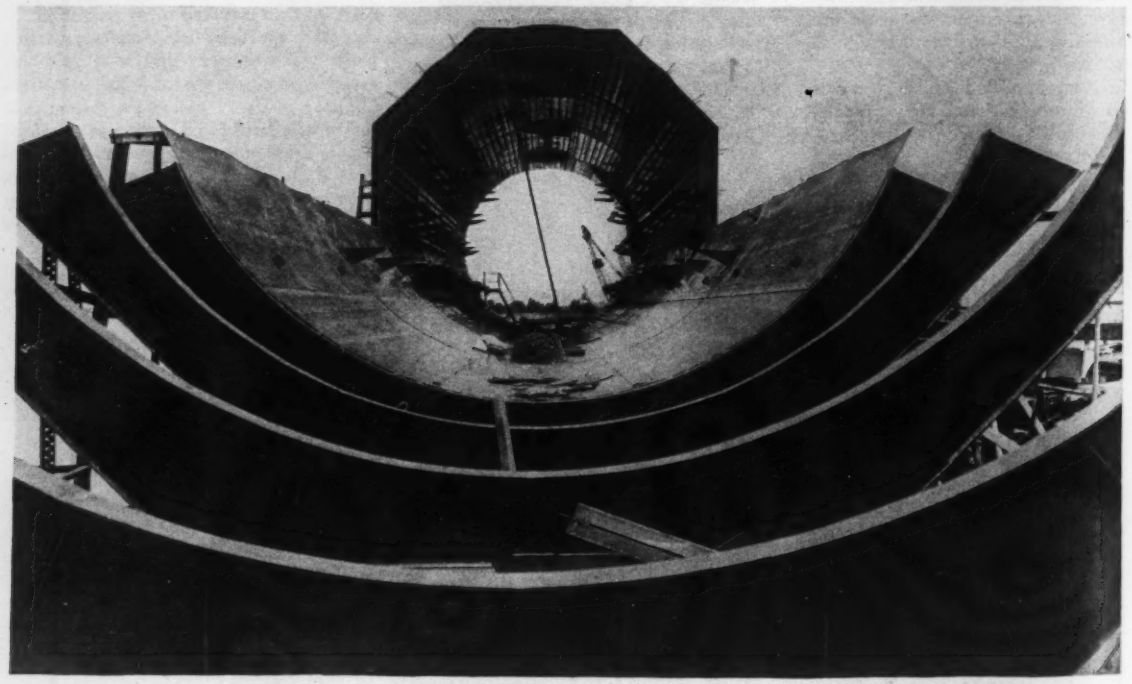


FABRICATION of welded tube section for Mobile's vehicular tunnel takes place in this yard of the Alabama Drydocks and Shipbuilding Co. Note completed section in background.

WITH THE FABRICATION of tunnel sections, work on the $4,000,000 vehicular tunnel under the Mobile River at Mobile, Ala., is now well under way. The tunnel is to be a single tube laid in a trench whose bottom attains a maximum depth of 80 ft. below low tide. A length of 2,100 ft., including the 1,100-ft. river crossing and 500 ft. on each shore, will be floated into position, the shore sections being placed in wet cofferdams. Total length, including approaches, is 3,441 ft., and the project will save a detour of 8 mi. on U. S. route 31, which is the main approach to the city of Mobile from the north.

The 30-ft. tubes are to be lined with 18 in. of reinforced concrete. Then the ends of each section will be sealed, the section launched, floated to position and sunk in the trench. A 2 to 3-ft. blanket of tremie concrete will be placed on the outside of the tube.

General contract for the main tube section and approaches is held by the Arundel Corp., Baltimore. Subcontractor for dredging about 1,000,000 cu.yd. of mud is the Murnan Dredging Co., and fabrication of the steel tubes is by the Alabama Drydocks and Shipbuilding Co. of Mobile. Wilberding and Palmer, Mobile, are consulting engineers for the city.

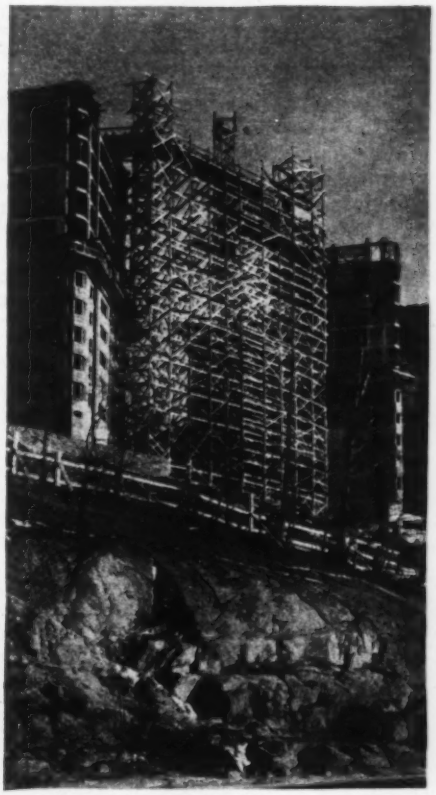


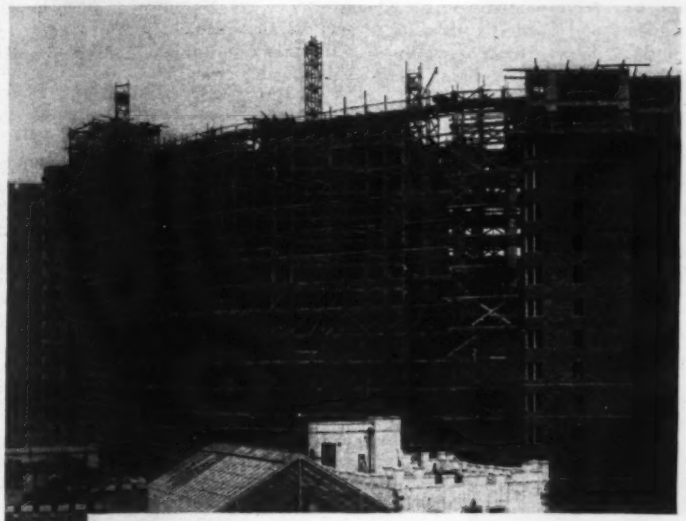
SECTION OF TUNNEL in various stages of completion. The closed part is ready for inside concreting; welded-in-place reinforcement for the concrete lining can be seen. In the foreground the welded octagonal ribs and plate lining await further work.

Two Concrete Plants Service Construction of Six Buildings

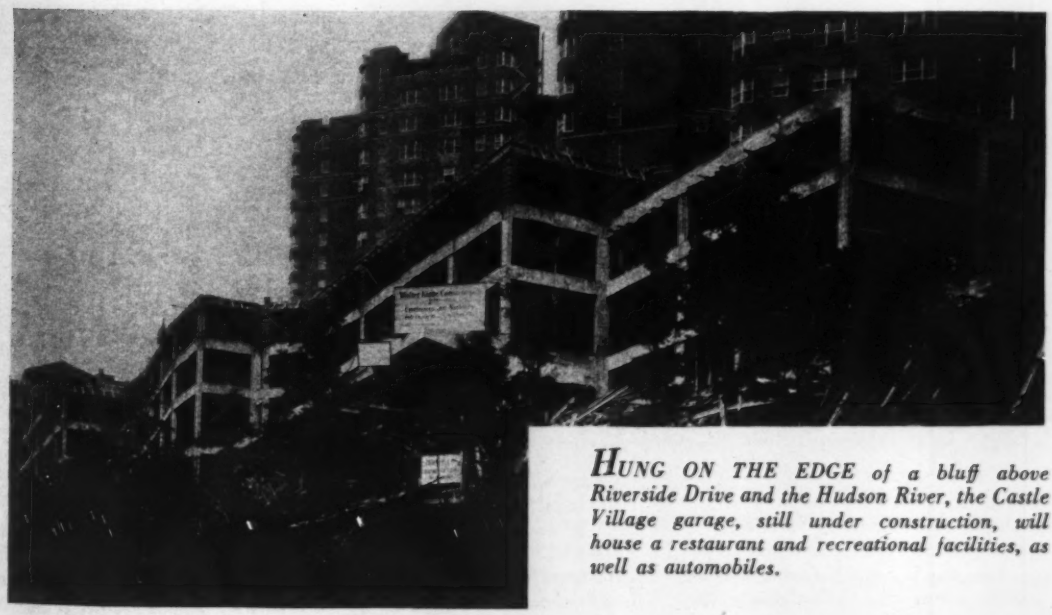
High above the Hudson River near New York's George Washington Bridge stand five new reinforced concrete apartment buildings and a garage. Of the several construction features of Castle Village, as it is called, the concrete plant layout is outstanding.

The apartment buildings are of identical Maltese cross-floor plan and are arranged in a line along the top of a cliff. Walter Kidde Co., concrete contractor, decided to do all mixing in two concrete plants, one for three buildings and one for the remaining two and the garage. Serving two buildings and the garage wasn't such a job, comparatively speaking, but in order to serve three buildings from the other plant, it was necessary to build a 320-ft.-long scaffold bridge that almost covered the middle structure. The plants mixed a total of 30,000 cu. yd. Victor Mayper is engineer and George Fred Pelham, Jr., is architect for the job. E. G. Robbins was in charge for Kidde.





FORESTS OF SCAFFOLDING grew up as construction progressed on New York's Castle Village apartments. Above is shown the bridge between two buildings. The garage was later built in the foreground. At the left is the 320-ft. bridge serving the other three buildings. The middle one is almost hidden.



HUNG ON THE EDGE of a bluff above Riverside Drive and the Hudson River, the Castle Village garage, still under construction, will house a restaurant and recreational facilities, as well as automobiles.

OBITUARY

LEWIS P. ANDREWS, 80, for the past 39 years president of the Sedalia, Mo. Water Co., died Aug. 2. After graduating from Washington University in engineering, he worked for the Big Four Railroad in Illinois and neighboring states. Later he was resident engineer for the Wabash Railroad. Leaving the railroad field, he entered public utility work. Two years were spent in Mexico constructing electric plants. Returning to the United States he soon became connected with the Sedalia Water Co.

CHARLES C. CULLITON, 69, member of the Culliton Brothers Bridge Contracting Co., died recently in Seattle, Wash.

ROBERT P. MCKENDRICK, 78, former building contractor of Memphis, Tenn., died July 31 in Miami, Fla.

ROBERT CRAMER, consulting engineer and chief engineer of the Milwaukee sewerage commission from 1927 to 1930, died Aug. 2 in Milwaukee at the age of 59. He was born in Austria of American parents and received his engineering education there, coming to the United States in 1903. He had worked with the Winslow High Pressure Boiler Co., Chicago, as chief engineer, and from 1917 to 1921 was chief engineer of the Kingsford Foundry & Machine Works, Oswego, N. Y. For the past ten years he has been secretary of the Engineers Society of Milwaukee.

HAROLD F. JANDA, 46, since 1928 professor of highway engineering and city planning at the University of Wisconsin, died July 29. In 1916, after graduating from the College of Engineering at the University of Wisconsin, he became assistant city engineer at Portage, Wis. From 1919 to 1921 he was assistant professor of civil engineering at the University of Cincinnati, leaving that school to become associate professor of highway engineering at the University of North Carolina. For three years he also carried out research work for the North Carolina state highway commission. When he began his teaching duties at the University of Wisconsin he also became research consultant to the Wisconsin highway commission. Janda at one time served as assistant director of the highway research board of the National Research Council.

JOHN R. SCOTT, president of the Chain of Rocks-Kingshighway Bridge Co., died July 29 in St. Louis at the age of 69. He had worked as a promoter for the $2,500,000 Chain of Rocks Bridge across the Mississippi River above St. Louis and acted as general manager for the company after completion of the bridge in 1929. The bridge was purchased last June by the city of Madison, Ill. and he was retained as general manager.

CECIL N. HAGGART, 64, civil engineer and former bridge designer for New York State, died July 29 in Pittsburgh. He had also worked with the McClintic-Marshall Construction Co. of Pittsburgh on railroad structures and buildings, and for several years worked with the American Bridge Co.

AUSTIN H. SHOOF, 75, retired building contractor, died July 26 in Canton, Ohio.

GEORGE H. SHEPARD, professor of industrial engineering and management at Purdue University, died July 30 at the age of 68. He attended the U. S. Naval Academy and Cornell University, getting an M.E. degree from the latter school in 1902. He had taught at Cornell and Syracuse University before going to Purdue and was author of various books on industrial engineering.

WILLIAM G. KIMBALL, 77, building contractor, died July 27 in Toledo, Ohio.

JAMES D. CLEMINSON, engineer in charge of the installation of the first public water supply system for El Monte, Calif., died in El Monte July 27 at the age of 69.

DAVID K. NICOLSON, 74, retired building contractor, died July 29 in St. Louis.

RICHARD H. BRITT, city engineer of Rockland, Me., died Aug. 8, at the age of 77. He was a graduate of the University of Missouri and spent several years as a mining engineer. Later he was in business at Springfield, Mass., and at one time was associated with the Lawrence Portland Cement Co.

JAMES A. CARNEY, 72, building contractor for 35 years in Vernon, Texas, died there July 27.

JOSEPH D. MYERS, of Winton, N. C. and a member of the contracting firm of McGill and Meyers, was electrocuted July 31, at Norfolk, Va. He was supervising the structural steel work on a new building and was killed when steel wires dangling from the boom of the crane became charged from an overhead power line.

FRANK O'SULLIVAN, 42, head of the S. and W. Construction Co., died August 3, at Memphis. Under his direction the firm in recent years has built many buildings in Memphis and neighboring cities.

ERNEST H. BALDWIN, engineer in charge of the construction of the Pathfinder Dam in Wyoming, the Bumping Lake and Kochess Dams in Washington, and the Elephant Butte dam in New Mexico, died July 28 at Springfield, Mo., at the age of 73. He graduated from the Civil Engineering Department of Cornell University in 1892. In 1895 he began work as assistant engineer for the city of Boston, and for the next ten years was connected with the Metropolitan Water Board of that city. In 1905 he entered the Reclamation Service. In 1917 he left to take a position with the Guggenheim Brothers., New York City, to be chief of their construction forces in South America.

THREE-FOOT CORES 150 FT. DEEP

Exploration of the foundation at the Isaac Ingall Stevens (Mud Mountain) Dam in Washington is being made with the aid of shafts 3 ft. in diameter carried down to a depth of 150 ft. Although the cores have been preserved, the primary purpose was inspection of the rock in place which is made possible by descent into the drill holes. The work is a U. S. Engineer's project. A part of one of the cores is shown above, assembled at the surface.

BRIEF NEWS

The Ward bills for a $60,000,000 system of superhighways for Chicago and Cook county to be financed by anticipated motor fuel tax revenues became a law July 21 without Governor Horner's signature. The bills authorized the issuance of $60,000,000 in indebtedness notes which are to be retired during the next 20 years out of the gasoline tax allotment, one-half of the obligation to be borne each by the city and county.

By a vote of 5 to 1, North Dakota citizens July 11 defeated the first proposal for a state road building holiday ever voted on publicly in North Dakota. If the measure had been approved, it would have meant that no new construction work could have been started on North Dakota highways for a period of two years. Road maintenance would also have been severely limited.

WPA workers have built or improved about 68,000 miles of streets and roadways on projects completed during an eight-month period ending March 1, according to Col. F. C. Harrington, Works Project Commissioner. The aggregate mileage is sufficient to span the continent nearly 24 times from New York to San Francisco and the bulk of construction consisted of unpaved rural roads, much of it being "farm-to-market" type.

U. S. Army Engineers have begun work on the Caddo Dam on the Arkansas River about 20 miles east of Las Animas, Colo. Costing $14,600,000, the work is expected to take four years. Congress recently appropriated $3,516,000 for relocation of the Santa Fe railroad tracks now traversing the area to be inundated.

Early last month President Cardenas of Mexico announced approval of and immediate beginning of a $2,500,000 reclamation project for the fertile lands lying in Mexico immediately south of California's rich Imperial Valley, and a $400,000 highway project to extend from Mexicali to San Felipe on the Gulf of California. Gustavo Serrano has been appointed chief engineer of the reclamation project.

The Chicago Plan Commission is now a city department. Instead of being an independent and advisory association of some 300 members it will now be composed of 32 active members and an advisory board of 200. The active members will include the mayor, heads of departments, chairmen of council committees and seven citizens to be appointed by the mayor. The commission will have authority to consider proposed improvements in relation to a master plan which is to be prepared by the commission.

The Trudeau Swimming Bath, of Ville St. Pierre, Que., considered the city's big white elephant due to being erected in 1917 at a cost of $30,000 and operated for only three months, is to be torn down to make room for a highway.

"Works of Engineering Interest in New England to which Engineering Visitors are Welcome" is the name of a publication put out by a committee of the Engineering Societies of New England to provide information to engineering visitors at the New York World's Fair and to New England.

The entire properties of the Lakewood Water Co., a private corporation, have been transferred to the newly created Madison Suburban Utility District of Davidson County, Tenn., by a deed filed in the office of the county register. The purchase price is $300,000.

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Striking TVA Carpenters Return to Work

The 363 carpenters striking on various TVA projects have returned to work, ending the first labor trouble in which TVA has been involved.

Ten projects were affected and the strike resulted from a jurisdictional dispute between A. F. of L. carpenters and iron workers unions as to which is to supply labor for certain TVA jobs. An agreement has been reached whereby piling operations on projects now in progress will be performed by iron workers, while the carpenters will handle the piling work on the Gilbertsville, Ky., dam when construction begins.

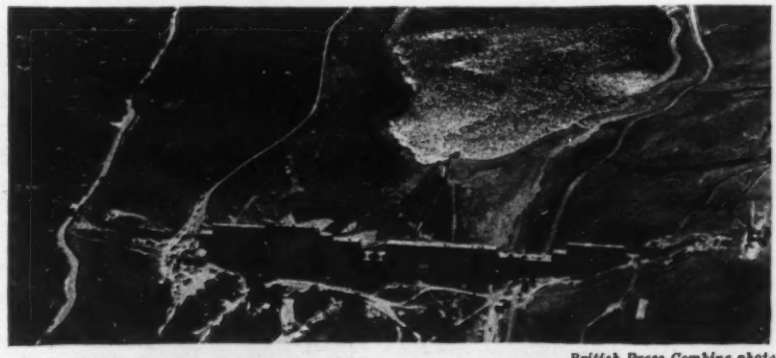
Engineers Condemn Iowa Airport Work

Flint and Green bring charges that paving of runways are not up to specifications

L. L. Flint, managing director of the professional division of the Iowa Engineering Society, and Roy M. Green, Western Laboratories, Inc., Lincoln, Neb., have brought charges that paving construction on the $1,750,000 airport runways at Des Moines is not up to specifications. The two declared in a report of their inspection that the "gravel is thoroughly unfit for use in concrete"; that "no engineering inspector was found on the work"; that "no licensed professional engineer is in responsible charge"; that the gravel contains "an excess of coal and carbonaceous shale, sticks, organic matter, and sand"; that "no proper correction is being made in the amount of water added to the concrete at the mixer to take care of the variation in the amount of surface water in the gravel"; and that "the work is being carried on in a reckless and haphazard manner."

The report to Mayor Conkling was submitted with a letter signed by Flint. H. O. Croft, professor of mechanical engineering at the University of Iowa, who is president of the society, declined to comment on the report. City Engineer John Tippee said that the city takes two daily samples of the concrete, and that these are inspected by Monroe Patzig.

Councilman John MacVicar, streets commissioner, said several Des Moines contractors and engineers and material men have criticized the airport project because the city is using gravel pumped from the Des Moines river with a city-owned dredge and receiving a WPA credit of 30 cents a ton. "Engineers and contractors have bucked WPA ever since it started," he stated.



British Press Combine photo

WATER SUPPLY FOR MANCHESTER

WORK on the British Isles' greatest dam project, Haweswater Dam, is expected to be completed next year. The $50,000,000 project is located in Westmoreland, and will supply water for the city of Manchester.

R. H. Thomson, consulting engineer of Seattle, was hard at work in his office in the Seaboard building when a member of this journal's staff called recently. "R. H." isn't quitting just because it has been 62 years since he graduated (Hanover College). He's serving just now on the consulting board of the Lake Washington pontoon bridge and is still going strong on his consulting practice. Long ago, as city engineer, he fathered Seattle's great regrade project. At one time he was on the Seattle city council, and shortly before the war he was in charge of construction in Strathcona Park on Vancouver Island for the British Columbia government. His private consulting practice in Seattle dates from about 1914.

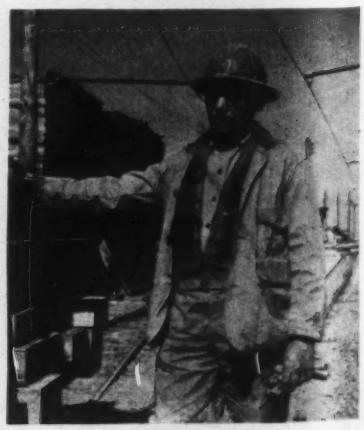
W. J. Newman, veteran Chicago contractor, affectionately known as "Billy", enters this "coffin" inspection cage ready for an 84-ft. descent to solid rock to have a look at the tremie-poured concrete in an adjacent test caisson excavated by an ingenious combined hydraulic and emulsifying cutter head Billy devised for the viaduct caissons of the Outer Drive Bridge three years ago. **E. W. Byers** (left) engineer in charge of construction for Montgomery Ward & Co., and **Frank A. Randall,** consulting structural engineer for the company, are kidding Billy about the perils of the proposed trip. The test caisson was on the site of a $1,000,000 extension for the mail order house.

MEN AT WORK

H. H. Cooper, junior engineer of the U. S. Geological Survey, has been assigned to the problem of gathering data available on the water permeability of lime rock formations in Florida. He is now engaged in making studies on the flow of artesian wells in the Jacksonville area, and putting to practical use the hydraulics training received at the University of Florida, from which he was recently graduated.

E. A. Cleveland, as chief commissioner, Greater Vancouver Water District, has effectively managed that city's water supply affairs over a long period of years. His latest addition to the city's system includes a 48-in. reinforced concrete submarine pipe line, which has just been completed across False Creek, operating under a head of 240 ft. Cleveland is a member of the American Society of Civil Engineers.

When the National Tunnel & Mines Co. decided to drive the 37,000-ft. Elton Tunnel to drain its mining property near Tooele, Utah, it put the veteran **A. P. Lofquist** in charge. Long experienced in underground work, he designed a wood timbering system as neat as any ever seen on tunnel work. The bore, 9½ x 12 ft. finished section, will also serve as a haulageway for ore from the deep mines to smelters.



MEN AND JOBS

F. WARREN RAGGIO, who has been serving as chairman of the Louisiana Tax Commission, has been named chairman of the Louisiana Highway Commission. He succeeds Lether E. Frazar, who held the position but a few days before resigning. Frazar had succeeded A. P. Abernathy.

JOHN W. BEAL, architect and engineer, Hanover, Mass., has been nominated to succeed W. F. Callahan as Public Works Commissioner of Massachusetts. Beal attended Massachusetts Institute of Technology.

ROY BROOKS, until recently a PWA engineer and prior to that a general contractor, is now a partner in the A. W. L. Contracting Co. of Denver.

CARL LEMMER has been appointed acting surveyor of Cascade County, Montana, to fill the position made vacant by the recent death of William F. Schrapps. Lemmer has been connected with the county surveyor's office for five years.

HARRY BARNES has been appointed city engineer of Rocky Ford, Colo. He is a graduate of Kansas State Agricultural College.

R. N. FORSBERG, assistant highway engineer for McLeod County, Minn., has been appointed engineer for Jackson County with headquarters at Jackson.

J. R. PHILLIPS, formerly district engineer for the Wyoming Highway Department at Casper, has joined the organization of Blanchard Brothers, road contractors. Phillips had been with the highway department for 18 years.

ARTHUR L. HOOPER, for the past five years senior highway engineer with the PRA, has been appointed assistant district engineer to fill the position made vacant by the death of L. T. Powers. Hooper will be located at the regional office in Spartanburg, S. C. He studied engineering in Scotland, was in Washington for a time, and for the past 20 years has been at Raleigh.

DANIEL A. BAILEY of Phillipsburg, has been added to the Pennsylvania State Highway Department's staff in the District No. 2 office. Other new appointments are WILLIAM BODMER, Kingston, to District No. 4; JOHN R. SHALLCROSS, Philadelphia, to District No. 6; RALPH WOLFE, Lancaster, to District No. 8; RUEL K. BELKNAP, Huntington, to District No. 9; and WALLACE P. HARTIGAN, Pittsburgh, to District No. 11.

R. E. SWARTHOUT, consulting engineer, is leaving the staff of the Raymond G. Osborne Laboratories to go into private practice.

E. L. BOWERS and L. K. BOWERS have organized the Bowers Construction Co. at Topeka, Kan. The contracting firm of Bowers & Ingram has been dissolved.

PAUL J. RAVER, executive officer of the Illinois Commerce Commission, has been appointed chairman of that body. His first connection with that commission was in 1933 when he organized and directed its department of rates and research. He later became active in rural electrification and has done extensive work with the National Association of Railroad and Utilities Commissioners, directing the preparation of many of their technical reports on the regulation of public service companies. He graduated in engineering at the University of Nebraska in 1917 and in 1927 received a master's degree from Northwestern University, followed by a Doctor of Philosophy degree from the same school in 1933.

LOUIS DEBLOIS, consulting engineer, has been elected executive vice-president of the Greater New York Safety Council, succeeding W. Dent Smith. He once headed the safety engineering division of the National Bureau of Casualty and Surety Underwriters and has been a member of the board and executive committee of the National Safety Council since 1918. He is author of "Industrial Safety Organization."

ALEX FITZHUGH, secretary of the Greater Des Moines Committee, was recently elected secretary-treasurer of the Roosevelt Highway (U.S. No. 6) Organization at a meeting in Port Jervis, N. Y.

PHILIP MATHEWS, who retired from the coast artillery in 1922 with the rank of lieut.-col., has been appointed state WPA administrator for Pennsylvania. He was chief executive officer of the New York State Transit Commission for two years after he left the army. He then became director of the Pittsburgh Bureau of Governmental Research and in 1937 became assistant budget director of Pennsylvania, a post he held until the change in administration this year.

DENIS W. DELANEY, formerly regional engineer of WPA's New England region, is now state administrator for Massachusetts. Delaney was at one time a contractor in the Boston area. He studied at Boston College, served in the infantry during the war, received a degree from the University of Bordeaux, and studied at the Tuck School of Business. He then organized the Delaney Construction Co., and at the same time carried on studies at M.I.T. which brought him a B.S. degree. Later from Northeastern University he received a law degree.

HARLOW P. BESCHENBORSEL, a graduate in civil engineering from the University of Minnesota, has been named engineer of Cook County, Minn. He has been with the Minnesota Highway Department for eight years and succeeds M. W. Griffith.

N. E. BRITTON, construction engineer for the Air Reduction Co., Inc., since 1918, at New York, is retiring. Britton began his engineering work with the New York Central R. R. as a rodman and advanced to assistant engineer. He then went with the Pittsburgh & Lake Erie R. R. to work as chief draftsman for 17 years, resigning from that position to accept the position of construction engineer with the Air Reduction Co. After Sept. 1, he will make his home at Clearwater, Fla.

GEORGE K. HURD and HOWARD H. WALDRON are president and treasurer, respectively, of the recently incorporated Advance Engineering Corp. of Portland, Me.

HORACE L. SEYMOUR, consulting engineer and town planning consultant of Ottawa, Canada, has been appointed to work out a detailed long-range plan for the improvement of the Neebing River in the vicinity of Fort William, Ont. He will be aided by C. B. SYMES, Fort William city engineer.

MEETINGS

FIFTH International Conference on Timber Utilization, Zurich, Switzerland, Aug. 29–31.

PUBLIC WORKS CONGRESS, annual meeting, Pittsburgh, Pa., Oct. 9-11.

AMERICAN SOCIETY OF SAFETY ENGINEERS, annual meeting, Atlantic City, N. J., Oct. 18.

AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS, fall meeting, Atlanta, Ga., Oct. 30-31.

Chicago Abandons Dumps After Series of Complaints

Four refuse dumps in Chicago are to be abandoned, following general complaints by residents of neighboring property that they created a nuisance from odors, smoke and vermin. These complaints crystallized in active protest recently when residents picketed one of the dumps to prevent the city's trucks from discharging their loads.

In place of the abandoned dumps there will be established two or more additional loading stations where the garbage and refuse will be delivered to railroad cars for shipment out of the city. The finance committee of the city council has directed Oscar E. Hewitt, commissioner of public works, to make a study of the economic feasibility of constructing district incinerators.

A garbage reduction plant was abandoned several years ago on account of high cost of operation, and in 1934 a modern incinerator plant was shut down after six years of operation because a cost of 55c. per cu.yd. was considered too high. Dumping in old quarries and gravel pits, which reduced the cost to 24c. per cu.yd., was begun but this resulted in continual complaints of unsanitary conditions.

Haulage to the new loading station will increase the cost to about 34 cents and the connecting time by 20 to 40 per cent.

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Congress Fails to Increase USHA Funds

The House on July 5 defeated the bill introduced by Senator Wagner and passed by the Senate June 8 whereby the USHA would be allowed to borrow and loan to local housing authorities an additional $800,000,000 and to contract for additional subsidies of $45,000,000 annually.

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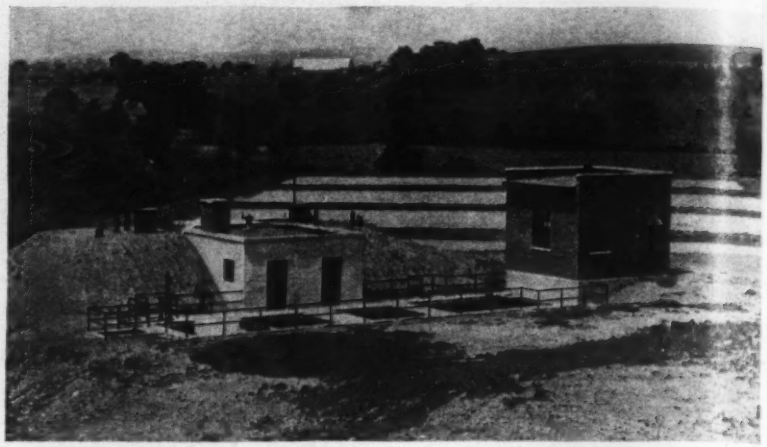
Meetings

(Continued from page 9)

BRITISH-AMERICAN ENGINEERING CONGRESS, New York City, Sept. 5–8, the American Society of Civil Engineers, American Society of Mechanical Engineers, Institution of Civil Engineers, Institution of Mechanical Engineers, and Engineering Institute of Canada participating.

AMERICAN SOCIETY OF SAFETY ENGINEERS, annual meeting, Atlantic City, N. J., Oct. 18.



GARBAGE GRINDING IN THE LAND OF GOSHEN

The first plant in New York state and one of the few in this country to employ garbage grinding combined with sewage disposal facilities went into operation at Goshen on August 9. Garbage from this community of 3,000 population is trucked to the disposal plant where it is shredded with a hammermill type grinder and then pneumatically conveyed to heated digestion tanks. These tanks, which are an integral part of the sewage treatment process and serve to digest sludge, merely have been made larger to accommodate the daily additions of garbage. Sewage sludge and garbage admixtures will digest to produce an innocuous humus-like product that can be used as a low grade fertilizer.

Henry W. Taylor, consulting engineer, New York, designed the plant, and Donohue-Murphy, Inc., of White Plains were the contractors. The total cost was $52,000, partly PWA grant.

AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS, fall meeting Atlanta, Ga., Oct. 30-31.

AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS, Richmond, Va., Oct. 9-13.

REGIONAL AND LOCAL

AMERICAN WATER WORKS ASSOCIATION, section meetings: Minnesota, Duluth, Aug. 24-25; West Virginia, Morgantown, Sept. 27-29.

AMERICAN SOCIETY OF CIVIL ENGINEERS, seventh district's second annual meeting, Michigan College of Technology, Houghton, Mich., Aug. 24-26.

AMERICAN WATER WORKS ASSOCIATION, California section, annual convention, San Francisco, Oct. 25-28.

MINNESOTA Section, A.W.W.A., Duluth, Aug. 24-25.

NEW ENGLAND WATER WORKS ASSOCIATION, annual convention, Hotel Windsor, Montreal, Sept. 12-15.

SOUTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE, fifth annual meeting, Rapid City, Sept. 14-15.

NORTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE, Dickinson, N. D., Sept. 22-23.

ELECTIONS AND ACTIVITIES

Arch Dendenger is the new president of the Greater Dallas, Tex., General Contractors Association. Other officers are A. J. Smith, vice-president; L. C. McNair, secretary-treasurer; and W. H. Malone, F. C. Crene and J. J. Townsen, trustees.

Ben M. Hogan has been chosen temporary chairman of a group of engineers to organize an Arkansas chapter of the Associated General Contractors of America. Ray Metzger has been chosen temporary secretary.

A. C. Polk of Birmingham, Ala., was chosen president of the National Council of State Board of Engineering Examiners at their twentieth annual convention in San Francisco, July 26-29. Other officers are: Virgil M. Palmer, Rochester, N. Y., vice-president; J. H. Dorroh, Albuquerque, N. M., director of the western zone; F. E. Rightor, Austin, Tex., director of the southern zone; C. C. Knipmeyer, Terre Haute, Ind., director of central zone; W. W. Hodge, Morgantown, W. Va., director of northeastern zone and T. Keith Legare, Columbia, S. C., continues as executive secretary. Representatives from 26 states attended. Next year's meeting will be held in Charleston, S. C., in October.

WASHINGTON HIGHLIGHTS

Special reports by Paul Wooton

AT HIS WEEKLY PRESS CONFERENCE Aug. 4, President Roosevelt was asked whether some flood control work allocation had been made between the Corps of Engineers and the Bureau of Reclamation. He said that he thought a healthy rivalry should be maintained between the two outstanding construction agencies, and that a balance of work should be arranged between them. He stated that the policy is to allow the Corps of Engineers to do all harbor work, all Mississippi River work, and all river work where flood control and navigation are principally involved. At the same time it is the policy to allocate the work on the upper reaches of rivers, where navigation does not enter into the picture, to the Reclamation Bureau. Each construction agency can act more or less as a check on the other. When a report is asked of either agency it is referred to the other for study. He said when a project comes up it is scanned to determine whether irrigation or flood control is more important. If it is about half irrigation it goes to reclamation, if that bureau does not happen to have too much work at that time.

A BAKER'S DOZEN of no-confidence votes were cast during the first session of the 76th Congress. The legislators refused to follow the administration on: spending, foreign policy, taxes, slum clearance, relief, and the Florida ship canal. The Hatch bill, extension of the Dies Committee and the NLRB investigation were approved in the face of administration opposition.

Substitution of the secret ballot among all employees—union or non-union—for a show of membership cards marks the most significant change of NLRB policy since the employer was allowed to petition for an election.

INTEREST RATE to be charged by the Rural Electrification Administration on loans it makes during the fiscal year ending next July was set last week at 2.69 per cent. REA interest rates are readjusted each fiscal year to conform to the provisions of the Rural Electrification Act. The act requires that the rate be equal to the average rate on United States obligations with a term of ten or more years.

As might be expected from the method of setting the rate, there has been little fluctuation. The rate for the fiscal year 1935-6 was 3.00 per cent; for 1936-7, 2.77 per cent; for 1937-8, 2.88 per cent; and for 1938-9, 2.73 per cent.

WHEN THE SECRETARY OF WAR orders a bridge over navigable waters to be rebuilt or relocated in the interests of navigation, the cost of the change will be shared between the owner and the United States, under the terms of a bill which Congress passed last week. The bridge owner will bear the part of the cost attributable to direct benefits to him and to the requirements of land traffic; the federal government will bear the rest of the cost. The bridge owner will carry out the work, with plans and bids subject to the Secretary's approval, and will be reimbursed by the government.

CONTRACTS on a cost-plus-a-fixed-fee basis were authorized by Congress last week on military public works in Panama and Alaska. The fee may not exceed ten per cent and must be arrived at after negotiation with at least three reputable contractors. Employment of consulting engineers on any War Department projects at fees not over 6 per cent is possible under the same bill.

DAMAGE done to the Atlantic coast line by the hurricane of last September is to be examined by the U. S. engineers as a result of a clause in the river and harbor survey authorization passed last week.

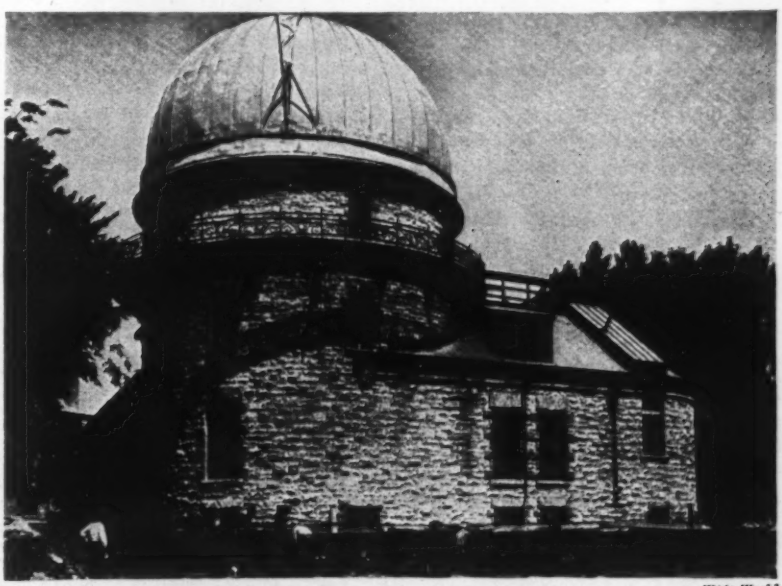
New Bids Called For Chicago Loop Subway

Bids taken recently for the shield-tunnel Loop section of the State St. Subway in Chicago have been rejected, and new proposals will be received August 17 by the Chicago Subway Commission. The previous low figure of $8,300,000, submitted by S. A. Healy Co., was considered too high.

PWA has agreed to an extension of time allowed for driving the 6,400-ft. section of the twin tunnels from 330 days to 450 days. It is the hope of the commission that this time extension, by permitting the use of two shields instead of four, will make possible a reduction in costs. The section extends from 11th St. to the Chicago River.

Meanwhile, the commission will open bids on August 10 for the twin shield-driven tunnels 4,500 ft. long under Dearborn St. Because of more difficult ground conditions and a narrower street, bringing the adjacent building foundations closer to the tunnel, the Dearborn St. section is considered more difficult than the State St. link. On both shield tunnel sections the contractor may use either cast iron or reinforced steel plate lining.

Bids for a 5,000-ft. section of twin tunnels for contract S-6 under Division Ave. will be received August 24. For this work the contractor may choose between a horseshoe and a circular section and may use shields or regular Chicago tunneling methods.



Wide World

NORTHWESTERN UNIVERSITY'S OBSERVATORY BEING MOVED

THE JOB of moving the Dearborn Observatory at Northwestern University in Evanston, Ill., has begun to make way for the new Northwestern Institute of Technology. Built in 1888 the building will be moved several blocks. Special care is required to keep from damaging the delicate astronomical instruments which are located in the building.

New Federal Aid Program For Highways Studied

A new form of federal aid to highways—loans for acquisition of rights of way—is incorporated in a bill introduced in the closing days of Congress by Senator Hayden and Representative Cartwright, Congressional specialists on road matters. The bill, following closely the form predicted in our issue of June 8, is based on the thesis advanced in the recent report of the Bureau of Public Roads that express routes through population centers are a major highway need and that the great obstacle is the high cost of right of way in such areas.

The bill is introduced at this time to give state highway departments an opportunity to study it before Congress reconvenes.

The Public Roads Administration would be authorized to purchase land, with funds obtained from RFC, by condemnation or otherwise, and immediately resell it to states, municipalities, or other public bodies. The local body would repay PRA over forty years with interest at such a rate as to reimburse RFC for the cost of capital (probably 2–3 per cent).

PRA could purchase no land until it had completed a resale contract with a local agency. Condemnation could be carried out under a procedure by which PRA would take over the land as soon as court action started, instead of waiting until a settlement had been made.

An alternative form of assistance is provided in the bill by authorizing RFC to make forty-year loans at low interest rates for highway projects approved by the Public Roads Administration. Loans could be either for right of way or for construction of highways or highway structures.

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Contract Awarded Despite License Cancellation

Despite the fact that its license had recently been cancelled, the Lee Moor Contracting Co. was awarded a contract for the reconstruction of 6.7 miles of highway near Flagstaff by the Arizona state highway commission. The company's license was revoked by the state registrar of contractors after a hearing at which the labor department of the state industrial commission charged the contractor employed out-of-state labor on public projects.

Attorneys for the contractor appealed to the state superior court and were granted a stay of execution of the order revoking the license, pending a hearing before the court. The contractor at present has work amounting to about $300,000 under construction in Arizona.

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Omaha to Enlarge Housing Project

The city council of Omaha has approved plans for a $1,400,000 extension to the North Side housing project. It has been agreed that 3 per cent of the gross revenues from the project will be donated to the city in lieu of taxes.

Contractor Wins Suit Over Specification Change

The state supreme court of Washington recently ruled that the city of Seattle must pay Martin Schuehle, Seattle contractor, $21,984, the amount he claimed due him because the city made changes in specifications after he had been awarded a bridge contract in 1936.

This ruling reverses a ruling of the King County superior court.

CONTRACTS AND CAPITAL

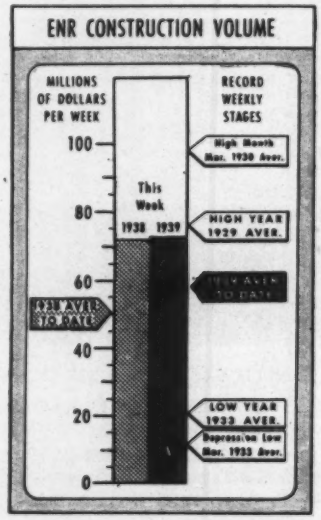
ENGINEERING CONSTRUCTION awards for the week total $74,434,000, the sixth highest weekly volume of the year, 57 per cent above last week, and 3.5 per cent above the corresponding week last year.

The current week's volume brings the 1939 cumulative total to $1,860,605,000, an increase of 16 per cent over the $1,607,649,000 reported for the initial 32-week period last year.

Public construction for the week is 95 per cent higher than a week ago, and 5 per cent above a year ago. Private construction is 9 and 0.5 per cent lower, respectively, than last week and last year.

In the classified construction groups, earthwork and drainage reached its third highest week of the year due to almost $12,000,000 in awards for construction and equipment for federal projects at Boulder Power Plant, Grand Coulee Dam and Shasta Dam. Unclassified construction is at its second highest weekly level of the year due to four large contracts for tunnel, pipe line, cable line and airport construction. In addition to unclassified and earthwork, sewerage, bridges, public buildings, and highways top a week ago, and sewerage, bridges, industrial and public buildings are above the 1938 week.

New capital for construction purposes for the week, $19,063,000, is 84 per cent under the volume for the 1938 week when PWA allotments swelled the total. This week's financing is made up of $10,501,000 in federal funds for construction, $8,001,000 in state and municipal bonds, $525,000 in corporate security issues, and $36,000 in RFC loans for public improvements.



CONTRACTS

(Thousands of dollars)

	Week Ending Aug. 11 1938	Aug. 3 1939	Aug. 10 1939
Federal	$9,739	$2,304	$18,474
State & Municipal.	46,354	27,866	40,235
Total public...	$56,093	$30,170	$58,709
Total private..	15,838	17,308	15,725
TOTALS	$71,931	$47,478	$74,434
Cumulative			
1939 .....(32 weeks)....			$1,860,605
1938 .....(32 weeks)....			$1,607,649

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1938 32 Wk.	1939 32 Wk.
NON-FEDERAL	$1,493,275	$978,708
Corporate securities	242,243	141,726
State & Mun. bonds	361,710	392,830
R.E.A. loans.....	11,629	89,445
R.F.C. loans	96,891	3,855
P.W.A. allotments.	424,774	.....
U.S.H.A. loans....	154,528	160,852
Fed. Aid—Highways	201,500	190,000
FEDERAL	$1,143,942	$832,028
TOTAL CAPITAL...	$2,637,217	$1,810,736

FHA MORTGAGES

	Week Ending Aug. 6 1938	July 29 1939	Aug. 5 1939
Selected for appraisal ...	$22,764	$20,305	$19,144*
Cumulative			
1939 .....(31 weeks)....			$699,999*
1938 .....(32 weeks)....			$578,275

*Subject to revision.

ENR INDEX NUMBERS

Index Base		1913	1926
Construction Cost	Aug....	234.90	112.92
Building Cost	Aug....	196.54	106.24
Volume	July....	166	73

CONTRACT UNIT PRICES

What contractors are bidding on different kinds of construction work

BRIDGE APPROACH MISSOURI

OWNER: Saline County, Marshall, Mo.; Sverdrup & Parcel, 1848 Railway Exchange Bldg., St. Louis, engineers.

PROJECT: Constructing 4.7 miles of roadway approaches to toll bridge over Missouri River in Saline County near Miami, Mo. Includes grading and excavating; construction of bituminous stabilized road bed with bituminous surface treatment; bridge over Wakenda Slough, 240-ft. long; two bridges over drainage ditches, 56 and 78 ft. long; and box and pipe culverts.

CONDITIONS: Project consists mainly of excavating and earth moving. Contractor to furnish all materials and complete job in 210 calendar days. Rail and highway transportation available. Wages on project are: skilled, 65c. per hr.; semi-skilled, 50c. per hr.; and common, 35c. per hr.

BIDS: Eight bids were opened on June 1, 1939, ranging from the contract low of $122,788 to $144,764.

LOW BIDDERS:

1. O'Dell & Riney Constr. Co., Hannibal, Mo. (contract) $122,788
2. Scherrer & Bennett Constr. Co., Kansas City, Kan. 127,431
3. Mike Haase Constr. Co., Kansas City, Mo.... 130,249

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Clearing	4.5 ac.	$50.00	$40.00	$50.00
2. Grubbing	2.5 ac.	50.00	40.00	50.00
3. Hedge removal	310 l. f.	.05	.10	.10
4. Unclass. excav	294,519 c. y.	.15	.14	.145
5. Cl. B. excav., struct	380 c. y.	.60	1.50	1.00
6. Compact. embankment	252,265 c. y.	.02	.02	.03
7. Overhaul	201,746 sta. y.	.005	.01	.01
8. Granular mat'l., base crse.	6,000 ton	1.55	1.75	1.90
9. Bitum. mat'l., binder	136,000 gal.	.12	.122	.124
10. Bitum. mat'l., primer	12,100 gal.	.12	.122	.114
11. Bitum. mat'l., seal coat	24,100 gal.	.12	.122	.114
12. Cover material	1,050 ton	2.75	1.75	3.00
13. Manipulate base crse	4.67 mi.	500.00	600.00	521.00
14. Water	46,000 hund. gal.	.001	.01	.01
15. Crush. stone surf	172 ton	1.75	1.75	1.60
16. Class C conc., culv	224.6 c. y.	18.00	20.00	18.00
17. Cl. B conc., abutm't and caps of bents	176 c. y.	21.00	25.00	21.00
18. Cl. B conc. in br. slab, curb	227 c. y.	20.00	25.00	22.00
19. Fabr. struct. steel	222,200 lb.	.0525	.06	.058
20. Tr. timber piling	2,010 l. f.	1.00	1.00	1.10
21. Concrete piling	1,425 l. f.	3.00	3.30	3.40
22. 8-in. perf. corr. met. pipe	140 l. f.	1.00	1.00	1.00
23. 15-in. corr. met. pipe	178 l. f.	1.40	1.50	1.00
24. 18-in. corr. met. pipe	392 l. f.	1.60	1.70	1.40
25. 24-in. corr. met pipe	340 l. f.	2.20	2.30	2.00
26. 36-in. corr. met. pipe	72 l. f.	5.00	4.50	4.00
27. Reinf., br. and culv	96,176 lb.	.04	.045	.04
28. Grouted hvy. stone revet.	50 s. y.	5.00	5.00	3.00

ROAD SURFACING, UTAH

OWNER: Utah State Road Commission, Salt Lake City, Utah. E. C. Knowlton, State Road Engineer.

PROJECT: Road mixed bituminous surfacing Wanship-Peoa Road in Summit County and constructing a 60-ft. span steel stringer bridge. Road surfacing 20-ft. wide; length of improved road, 3.6 miles.

CONDITIONS: Work to be completed in 150 working days. Contractor to furnish all materials. Wage rates: skilled, 80c. to $1.00 per hr.; semi-skilled, 60c. per hr.; common, 50c. per hr. Rail and highway transportation facilities available.

BIDS: Twelve bids were received June 6, 1939, ranging from the contract low of $44,666 to $58,610. Engineer's estimate, $53,899.

LOW BIDDERS:

1. L. A. Young Constr. Co., Richfield, Utah..... $44,666
2. W. W. Clyde & Co., Springville, Utah..... 47,169
3. Olof Nelson Constr. Co., Logan, Utah..... 49,765

1—ROAD SURFACING

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Gravel surface	22,100 ton	$0.35	$0.36	$0.44
2. Gravel base	5,700 ton	.35	.30	.40
3. Bitum. mat'l. (SC-3)	1,300 bbl.	2.60	2.50	2.40
4. Bitum. mat'l. (seal coat)	265 bbl.	3.00	2.70	2.90
5. Cover material	435 ton	2.50	2.00	2.00
6. Scarify and mix	3.588 mi.	400.00	450.00	450.00
7. Unclass. excav	35,000 c. y.	.12	.13	.12
8. Class A overhaul	201,000 st. y.	.015	.015	.015
9. Class B overhaul	29,000 yd. mi.	.15	.15	.15
10. Rounded cut slope	9 sta.	8.00	6.00	6.00
11. Watering	450 M. gal.	.40	1.00	1.00
12. Channel excav	1,000 c. y.	.25	.30	.30
13. 12-in. corr. met. pipe	128 l. f.	1.10	1.15	1.30
14. 15-in. corr. met. pipe	108 l. f.	1.30	1.40	1.50
15. 18-in. corr. met. pipe	328 l. f.	1.60	1.75	1.80
16. 24-in. corr. met. pipe	170 l. f.	2.65	2.50	2.60
17. 30-in. corr. met. pipe	50 l. f.	3.30	3.25	3.10
18. Excav., structures	465 c. y.	.75	1.00	1.00
19. Class A concrete	100 c. y.	20.00	20.00	22.00
20. Reinforcing steel	20,000 lb.	.05	.05	.06
21. Reset exist. guard rail	700 l. f.	.25	.50	.40
22. Fence, type B	9,900 l. f.	.12	.12	.12
23. 14-ft. gates	2 ea.	18.00	18.00	20.00
24. Right-of-way markers	16 ea.	2.00	2.50	2.50

2—STRINGER BRIDGE

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Excav., structures	600 c. y.	$1.50	$3.00	$2.00
2. Class A concrete	200 c. y.	20.00	20.00	22.00
3. Reinforcing steel	32,000 lb.	.05	.05	.06
4. Structural steel	55,000 lb.	.05	.0675	.07
5. Concrete handrail	135 l. f.	3.00	3.50	3.00
6. Rock filled wire baskets	105 l. f.	3.00	2.00	3.00

HIGHWAY WORK, MONTANA

OWNER: Montana State Highway Commission, Helena; Kenneth Haskell, engineer.

PROJECT: Grading, drainage and constructing a bridge on 5.667 mi. of Section C, Terry-Brockway Road, Prairie County. The bridge is a four panel 76 ft. trestle bridge.

CONDITIONS: Transportation facilities by rail and highway are available. Stipulated contract terminal date is November 30, 1939. Minimum wages are as follows: skilled, $1.20 per hr.; semi-skilled, 82½c. per hr.; 65c. per hr.

BIDS: Four bids were received June 16, 1939, ranging from the contract low of $32,978 to $39,372.

LOW BIDDERS:

1. The Haggart Const. Co., Fargo, N. D. (contract) $32,978
2. Albert Lalande Co., Sidney, Mont..... 37,415
3. S. J. Groves & Sons Co., Minneapolis..... 38,963

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Uncl. excav	73,636 c. y.	$0.24	$2.85	$0.35
2. Struct. excav	765 c. y.	1.00	1.50	1.00
3. Overhaul	85,600 sta. yd.	.015	.03	.01
4. Hand laid rip-rap	50 c. y.	4.00	5.00	4.00
5. 15-in. corr. metal pipe culv	64 l. f.	2.00	1.50	1.50
6. 24-in. corr. metal pipe culv	648 l. f.	3.00	3.40	2.50
7. 30-in. corr. metal pipe culv	136 l. f.	4.50	3.90	3.00
8. 36-in. corr. metal pipe culv	168 l. f.	6.00	5.40	5.00
9. 42-in. corr. metal pipe culv	48 l. f.	7.00	5.90	6.00
10. 48-in. corr. metal pipe culv	364 l. f.	8.00	6.90	6.50
11. Treated lumber	27.20 M. b.m.	110.00	120.00	120.00
12. Untreated lumber	1.86 M. b.m.	100.00	120.00	120.00
13. 25 ft. treated timber piles	14 ea.	35.00	30.00	25.00
14. 30 ft. treated timber piles	15 ea.	45.00	35.00	30.00
15. Gravel ballast	21 c. y.	4.00	2.00	5.00

(Contract Unit Prices continued on page 15)

CONSTRUCTION REPORTS

Compiled by BUSINESS NEWS DEPARTMENT
Engineering News-Record, 330 W. 42nd St., New York
ELSIE EAVES, MANAGER
(Daily service also available—Write for details)

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

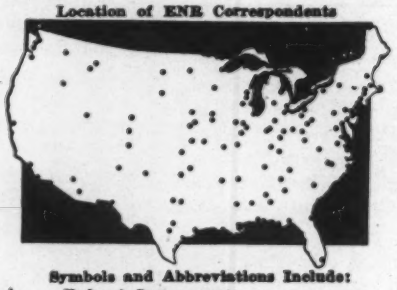
Classes of Construction
(Named in order of Listing)

Water Supply	Unclassified
Sewers, Waste Disposal	Materials, Equipment
Bridges, Grade Cross'gs	Public Buildings
Streets & Roads	Commercial Buildings
Earthwork, Waterways	Industrial Buildings

Stages Reported

PROPOSED: (except Streets & Roads);
BIDS ASKED (new announcements only. For full calendar, see also preceding issues of ENR);
LOW BIDDERS ($500,000 projects and over);
CONTRACTS AWARDED

Location of ENR Correspondents



Symbols and Abbreviations Include:

† Federal Government
★ Project of $500,000 or over
ENR Engineering News-Record
CD McGraw-Hill Construction Daily

WATER SUPPLY

PROPOSED WORK

Minn., Moorhead—R. G. Price, City clk., 2 pumps for pumping water from Red River of North to park grounds.

Mo., Warrenton—Surveys, waterworks and sewerage systems. Est. $75,000. H. Kemper, mayor. E. A. Fulton, consult. engr., 3 S. Meramec Ave., St. Louis, engr.

Nev., Elko—City Council votes $81,000 bonds for c.i. watermain replacements and imprv. city water system.

N. Y., Lakewood—Village, extending c.i. watermains into Ellicott Twp., along Crystal Ave., etc. Over $15,000. E. Eckman, Lakewood, mayor. J. E. Hill, 24½ Main St., North East, Pa., boro engr.

Pa., Danville—Boro, additional well drilling in Susquehanna River for municipal water supply. Est. $15,000 plus. Borough Engineering Dpt., engrs.

Pa., Sharpsville—Boro, extending c.i. watermains. Est. $15,000 plus. G. Mahaney, Sharpsville, burgess.

Pa., Shillington—Fairy Silk Mills, Inc., E. S. Jenckes, in charge, Shillington, purchasing, installing water softener sys. at textile plant, also relining all dye vats with stainless steel. Over $15,000.

Pa., Slatington—Extending c.i. watermains, Center, Union and Walnut Sts., also hydrants, service connections, meters, etc. Est. $15,000. B. J. Sieger, boro engr. CD 1/31/38—ENR 2/3/38.

Alta., Innisfail—J. H. Metcalfe, chn. Council Com., WW sys.

Ont., Garson—James, Proctor & Redfern, engrs., Excelsior Bldg., Toronto, bids soon water and sewerage sys. for town. $105,000.

Ont., Kirkland Lake—J. N. McBani, clk. Teck Twp., sewers and water mains from town limits to West Kirkland. $32,000. W. A. Speliman, Kirkland Lake, engr. CD 6/28—ENR 7/6.

Ont., Plantagenet—Municipality, modernization WW sys. $18,000. E. Sequin, reeve.

Que., St. Jerome—A. Morin, engr., Town Hall, WW imprvs. $20,000.

Ont., Windsor—City Clerk, bids soon addn. filtration plant, 5 mg. reservoir. $65,000. J. Clark Keith, Windsor, genl. mgr.

Que., Charlesbourg — Voted 1 mi. 6 in. steel water mains and hydrants. $25,000.

Sask., Swift Current—P. Smith, engr., Town Hall, replacing steel wate. mains. $40,875 voted.

BIDS ASKED

Bids Asked August 14

R. I., Providence—J. F. Collins, mayor, City Hall, Providence, filter controls, etc., for water filtration plant, Scituate, for Newtaconkanet reservoir, etc. J. E. Meade, City Hall, city engr.

Bids Asked August 15

Kan., Kansas City—Wyandotte Twp., 250,000 gal. elevated water storage tank and tower, $21,000. C. A. Haskens, Finance Bldg., Kansas City, Mo., engr.

N. Y., New York—Comr. Water Supply, Gas & Electricity, Municipal Bldg., furnishing, delivering, installing 12 in. steel pipe, to replace existing pipe between Piers 1 and 2 on Queensborough Bridge.

Pa., Fox Chapel—Fox Chapel Auth., R. H. Boyles, secy., Boro Bldg., plumbing, heating and remainder of work WW sys. Chester Engineers, 210 E. Parkway, NS, Pittsburgh, engrs. CD 5/3—ENR 5/11 under CA.

Bids Asked August 16

Conn., New Britain—M. W. Bannan, chn. Bd. Water Comrs., 2 clear water storage tanks, appurtenant structures for WW. PWA. G. Molleur, City Hall, city engr.

Bids Asked August 17

†Md., Chesapeake City—U. S. Eng., 900 Customhouse, 2nd & Chestnut Sts., Phila., Pa., water supply sys. incl. 6 in. pipe line.

Bids Asked August 18

Ind., Medora—T. Wright, town clk., WW and distr. sys., deep well, pipe casing, turbine pump, fire hydrants, c.i. water mains, etc. A. C. Kamplain, 2442 N. Meridian St., Indianapolis, engr.

Bids Asked August 22

Mich., Grand Rapids—At office J. Van Wingen, city clk., Lake Michigan Water Supply Pump. Stas. 1 and 2; adv. ENR 8/10. CD 8/1—ENR 8/3.

Miss., Natchez—Test well drilling wells and treatment plant, $192,000. Wiedeman & Singleton, Candler Bldg., Atlanta, Ga., engrs.

Mont., Warm Springs—I. S. McQuitty, state purch. agt., Helena, water sys. for State Mental Hospital, 2 mi. pipe, 2 mi. high tension wire, equip. for pump house.

Bids Asked August 23

Ind., Andrews—Town Bd., B. Glaze, pres., Div. B, general construction WW and distr. sys., Div. C, elevated steel tank. Bids later on deep well turbine pump, 2 horizontal centrifugal pumps and sump pump. Total est. $40,000. PWA. Lewis S. Finch, 276 Century Bldg., Indianapolis, consult. engr.

Bids Asked August 24

Mass., Boston—At office Metropolitan Dist. Water Supply Comn., R. N. Molt, secy., 20 Somerset St., Contr. 90, furnishing, delivering gasoline electric generating plant, special castings, etc., Southborough and Weston and cities of Newton and Melrose, est. $10,000; PWA; K. R. Kennison, ch. engr. Com.; adv. ENR 8/10.

Bids Asked September 5

†Ky., Louisville—U. S. Eng., Box 59 Louisville, 10,000 gal. water tank and tower.

Bids Asked

Que., Rimouski—Town Clerk, taking bids exten. WW, 4,750 ft. c.i. pipe. $93,000. M. Pineau, supt.

CONTRACTS AWARDED

Calif., Chino—W. K. Daniels, acting state archt., P. Wks. Bldg., Sacramento, constructing elevated steel tank for Southern California Prison, to Pittsburgh-Des Moines Steel Co., Rialto Bldg., San Francisco, for State. $27,985. Bids 8/1. CD 7/19.

Calif., San Francisco—P. Utilities Comn., City Hall, laying 6 and 8 in. c.i. watermains, Delta and Day Sts., to W. J. Tobin, 3702 Balfour Ave., Oakland, $5,871. City furnishes pipe and fittings. Bids 7/26. CD 7/21—ENR 7/13.

Colo., Golden—Reservoir, to F. A. Heckendorf, 2038 Gaylord St., Denver, $15,923. Bids 7/7. CD 3/31—ENR 4/13.

Ga., Atlanta—General contract, addn. to boiler houses at Hemphill WW sta. and Chattahoochee Stations, to Smith & Pew Constr. Co., 786 W. Peachtree St., $64,859. Bids 7/31. CD 7/20.

Ga., Ludowici—Contr. 2, water distr. sys., mains, meters, valves, etc., to C. H. Cook Co., Inc., Buena Vista. Bids 7/28. CD 7/26.

Idaho, Georgetown—Water system, to N. Fugal, Pleasant Grove, Utah, $27,308. Bids 7/22. CD 7/14.

Ill., East Moline—Drilling new well for city WW, to Milsaeger Well Drilling Co., Milwaukee, Wis., $20,089. Bids 7/26. CD 7/18—ENR 7/20.

Kan., Wichita—25 brick well houses in connection with water supply sys., to O. T. Tyler Constr. Co., 322 W. 17th St., Wichita, $18,900. Bids 7/25. CD 7/17—ENR 7/20.

Ky., Middletown—125 connections, also 50,000 gal. elevated steel tank. WPA. $63,000. McKay King, Middletown, engr.

Mass., East Brookfield—Town, Water Dpt. Town Hall, 250,000 gal. capacity standpipe, to Pittsburgh-Des Moines Steel Co., 270 Bway., New York, $9,210; foundations, piping, to Marios Bros., Inc., 39 Artic St., Worcester. Bids 7/29. CD 7/25—ENR 7/20.

Mass., Sherborn — Town, Bd. Selectmen, Town Hall, test wells for WW sys., to F. MacFarland, Main St. Total est. $150,000. Balance of project awaiting special Town meeting. B. F. Snow, 14 Beacon St., Boston, engr. CD 4/10—ENR 4/13.

N. J., Wood Ridge—Boro, pumping station, to P. Giuliano, 447 Main St., Lodi. R. Brown, 12 Park Ave., Rutherford, engr.

N. Y., South Fallsburg—Town Bd. at office of Town Clerk, Thompsonville Rd., Contr. B, WW., to Guy Villa & Son, Westville, N. J., $70,388***Contr. C., to Graver Tank & Mfg. Co., 424 Madison Ave., New York, $5,436. Bids 5/11. CD 4/27—ENR 5/4.

N. C., Drexel—Town, 144,000 gal. water treatment plant, power line, to Reed & Abee, Inc., Fairview Rd., Asheville, $20,609. Bids 8/1. W. K. Dickson, 119 Circle Ave., Charlotte, engr.

Tex., Pampa—W. T. Williamson, mgr., WW imprv. incl. high service pumping station, pumphouse to Sherman Machine & Iron Works, 18 E. Main St., Oklahoma City, Okla., $15,085. Bids 7/27. CD 7/20.

B. C., Vancouver—C. Brakenridge, engr., City Hall, 10,000 ft. 6 in. and 5,000 ft. 12 in. water mains to Evans Coleman & Evans, Columbia St., $22,450; 5,000 ft. 12 in. and 10,000 ft. 6 in. water mains, to Gordon & Belyea, 101 Powell St., $21,397. CD 6/7—ENR 6/15.

Man., Brandon—Municipality, lowering water mains and asphalt macadam paving, day labor. $50,000.

Ont., Malton—Owner c/o Stark & Co., Royal Bank Bldg., Toronto, deep water supply sys., etc., for housing development, to International Water Supply Ltd., 12 Maitland St., London. Edwin Kay Ltd., 96 Bloor St. W., Toronto, engr.

Que., Rimouski—M. Pineau, engr., Town Hall, exten. water intake to reservoir, day labor. $114,000. CD 7/21—ENR 7/27.

Sask., Lloydminster—Gravel wall drilled well, to International Water Supply Ltd., 12 Maitland St., London, Ont. CD 3/8—ENR 3/16.

SEWERS, WASTE DISPOSAL

PROPOSED WORK

Ia., Waterloo—Hearing set August 14, for sanitary sewers, $22,000. C. T. Wilson, city engr.

Ky., Danville—H. L. Nichols, mayor, sewage disposal plant, incinerator. $100,000. R. C. Terrell, city engr. H. K. Bell, McClelland Bldg., Lexington, engr. CD 3/22—ENR 3/30.

Minn., Anoka—W. Ridge, city clk., sewage disposal plant. Over $25,000. R. D. Thomas & Assoc., 1200-2 Ave. S., Minneapolis, engrs.

Mo., Warrenton—See "Waterworks."

N. Y., Falconer—West Ellicott Sewer Dist. (forming) c/o Ellicott Town Bd., Community

(Contract Unit Prices continued from page 13)

CHANNEL IMPROVEMENTS NEW YORK

OWNER: U. S. Engineers, Security Mutual Building, Binghamton, N. Y. Major G. J. Nold, district engineer.

PROJECT: Hornell Channel Improvement project (Middle Section) is located mainly within city limits of Hornell, Steuben County, New York, and consists of channel excavation for widening, deepening and straightening of Canisteo River, Canacadea Creek and Chauncey Run; construction of levee embankments; construction, alteration and removal of bridges, concrete and stone walls; concrete channel paving; concrete crib retaining walls; concrete drop structures; construction and alteration of sewers; and rock protection work.

CONDITIONS: Local relief labor to be employed so far as practicable. Contractor to furnish all materials. Work to start 10 days after notice of award, and to be completed in 900 calendar days. Railway and highway transportation facilities available. Minimum wage rates on the project are: common, 50 to 60c. per hr.; semi-skilled, 60 to 75c. per hr.; and skilled, 75 to $1.375 per hr.

BIDS: Seven bids were received July 10, 1939, ranging from the low of $1,466,560 to $2,132,153. Engineer's estimate, $1,514,853.

LOW BIDDERS:

1. Spencer & Ross, Inc., Detroit, Mich..... $1,466,560
2. Collins Bros., Mechanicsville, N. Y..... 1,665,252
3. Cold Springs Constr. Co., Akron, N. Y., and Hornell Constr. Co., Hornell, N. Y..... 1,696,315

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Clear and grub	L. S.	$15,000.00	$40,000.00	$10,000.00
2. Strip, levee found	25,000 c. y.	.40	.40	.50
3. Landscape grading	1,500 c. y.	.75	1.00	1.00
4. Excav. channel	425,000 c. y.	.40	.50	.45
5. Excav. structural	58,000 c. y.	.50	1.00	1.00
6. Excav. insp. trench	22,000 c. y.	.40	.60	.40
7. Excav. culv., sew., tren	3,000 c. y.	1.00	1.00	3.00
8. Excav. rock	1,000 c. y.	2.25	2.00	2.00
9. Overhaul (over 3,000 ft.)	1,250,000 sta. y.	.005	.005	.005
10. Remove wall and brdg. abutments (masonry)	700 c. y.	5.00	1.50	2.00
11. Remove wall and brdg. abutments (conc.)	2,500 c. y.	5.00	6.00	3.00
12. Remove steel sheet piling	2,500 s. f.	.75	.40	.50
13. Sheeting, incl. shoring	27,000 s. f.	.60	.75	.30
14. Struct. backfill, compact	48,000 c. y.	.10	.70	.60
15. Struct. backfill, uncomp	3,000 c. y.	.05	.40	.60
16. Embankment	262,000 c. y.	.02	.12	.20
17. Additional rolling	2,500 M s. f.	.02	.02	.02
18. Topsoil placing	10,000 c. y.	.30	.60	.50
19. Topsoil, furn. and pl	5,000 c. y.	1.25	1.50	1.25
20. Seeding	20 ac.	40.00	150.00	250.00
21. Riprap, dumped	8,600 c. y.	4.00	4.50	5.00
22. Rock paving, hand	7,000 c. y.	6.00	7.00	10.00
23. Derick stone	1,300 c. y.	7.00	6.00	6.00
24. Grout, gut. and rock pav	400 c. f.	1.50	8.50	.75
25. Gravel, back and drain	5,000 c. y.	3.00	2.00	3.00
26. Chip, conc. or masonry	1,500 c. f.	2.00	1.00	1.00
27. Class A concrete	17,000 c. y.	17.00	18.25	22.00
28. Class B concrete	2,500 c. y.	14.00	16.00	17.00
29. Concrete paving	27,000 c. y.	11.00	13.00	14.00
30. Conc. misc. struct	300 c. y.	25.00	15.00	20.00
31. Conc. crib walls	830 c. y.	40.00	38.00	34.00
32. Conc., dumped riprap	460 c. y.	10.00	12.00	15.00
33. Timber piling	6,000 l. f.	1.00	.90	.75
34. Sheet steel piling	22,000 s. f.	1.50	1.50	1.20
35. Drill holes, stone or conc	8,500 l. f.	.30	.60	.50
36. Expans. anchors	1,000 ea.	3.00	.60	.50
37. Reinforcing	3,100,000 lb.	.04	.05	.04
38. Remove bridge, Church St	L. S.	10,000.00	800.00	500.00
39. Remove Bennett St. bridge	L. S.	10,000.00	800.00	500.00
40. Remove River St. bridge	L. S.	20,000.00	8,000.00	6,000.00
41. Remove Erie RR bridge	L. S.	10,000.00	800.00	500.00
42. Remove PS&N RR bridge	L. S.	15,000.00	800.00	1,000.00
43. Struct. steel, bridge	410,000 lb.	.06	.065	.065
44. River St. bridge deck	L. S.	15,000.00	6,000.00	9,000.00
45. Bennett St. bridge deck	L. S.	2,500.00	2,500.00	3,200.00
46. Erie RR bridge deck	L. S.	1,500.00	500.00	500.00
47. Raise Seneca St. bridge	L. S.	10,000.00	4,000.00	2,500.00
48. Raise Main St. bridge	L. S.	10,000.00	4,000.00	2,500.00
49. Raise East Elm St. bridge	L. S.	5,000.00	3,000.00	1,500.00
50. Raise Cedar St. bridge	L. S.	7,500.00	5,000.00	4,000.00
51. Misc. metal work	15,000 lb.	.20	.17	.20
52. Wrt. iron pipe hd'rail	350 l. f.	3.00	3.00	4.50
53. Copper	8,700 lb.	.50	.60	.50
54. Cast iron pipe	17,000 lb.	.20	.05	.06
55. Auto. drain. gates, 8-in	5 ea.	40.00	20.00	30.00
56. Auto. drain. gates, 10-in	4 ea.	45.00	22.00	32.00
57. Auto. drain. gates, 12-in	5 ea.	50.00	23.50	35.00
58. Auto. drain. gates, 15-in	3 ea.	60.00	30.00	40.00
59. Auto. drain. gates, 18-in	2 ea.	75.00	42.00	55.00
60. Auto. drain. gates, 21-in	1 ea.	80.00	50.00	60.00
61. Auto. drain. gates, 24-in	9 ea.	100.00	55.00	65.00
62. Auto. drain. gates, 30-in	1 ea.	125.00	75.00	100.00
63. Auto. drain. gates, 36-in	4 ea.	200.00	105.00	130.00
64. Check valve, 6-in	3 ea.	60.00	35.00	30.00
65. Sluice gate, 36x48-in	1 ea.	1,000.00	850.00	1,200.00
66. Corr. met. pipe, 6-in	150 l. f.	1.70	2.00	1.75
67. Corr. met. pipe, 8-in	200 l. f.	2.00	2.20	1.90
68. Corr. met. pipe, 10-in	100 l. f.	2.25	2.40	2.10
69. Corr. met. pipe, 12-in	100 l. f.	3.00	2.60	3.00
70. Corr. met. pipe, 15-in	250 l. f.	3.50	3.50	3.50
71. Corr. met. pipe, 18-in	350 l. f.	5.00	4.20	4.50
72. Corr. met. pipe, 21-in	100 l. f.	6.00	5.00	5.00
73. Corr. met. pipe, 24-in	800 l. f.	8.00	6.20	8.00
74. Corr. met. pipe, 30-in	100 l. f.	12.00	8.10	10.00
75. Corr. met. pipe, 36-in	250 l. f.	15.00	13.00	14.00
76. Tile or conc. pipe, 6-in	100 l. f.	.50	.40	.50
77. Tile or conc. pipe, 8-in	100 l. f.	.60	.60	.60
78. Tile or conc. pipe, 10-in	250 l. f.	.80	.88	1.00
79. Tile or conc. pipe, 12-in	150 l. f.	1.00	1.15	1.25
80. Tile or conc. pipe, 15-in	100 l. f.	1.50	1.50	1.75
81. Tile or conc. pipe, 18-in	100 l. f.	2.00	2.20	2.25
82. Tile or conc. pipe, 21-in	100 l. f.	3.00	3.50	3.00
83. Tile or conc. pipe, 24-in	100 l. f.	4.00	4.00	3.50
84. Recon. and inst. auto. drainage gates	10 ea.	30.00	100.00	50.00
85. Recon., relay 6-10-in. pipe	250 l. f.	1.00	.40	.75
86. Recon., relay 12-24-in. pipe	600 l. f.	1.50	1.00	1.50
87. Recon., relay 27-36-in. pipe	200 l. f.	2.00	3.00	2.50
88. Farm drain tile, 8-in	2,500 l. f.	.50	.40	.50
89. Farm drain tile, 12-in	3,300 l. f.	.60	.75	.80
90. Fiber pipe, 3-in	1,400 l. f.	.30	.50	.30
91. Replac. pavmt., East Ave	L. S.	2,000.00	4,000.00	4,000.00
92. Road surf, gravel	1,500 c. y.	2.00	1.50	3.50
93. Road surf., bituminous	7,000 gal.	.15	.12	.12
94. Hwy guard rail	4,300 l. f.	.75	.75	1.15
95. Sew. excav., incl backfill	7,100 c. y.	2.50	1.00	3.00
96. Conc. pipe for sewer, 30-in	625 l. f.	5.00	8.00	4.00
97. Conc. pipe for sewer, 24-in	620 l. f.	3.50	5.00	2.75
98. Conc. pipe for sewer, 21-in	1,600 l. f.	2.50	4.00	2.25
99. Conc. pipe for sewer, 12-in	350 l. f.	1.00	2.00	1.30
100. Lateral, sub-main conn	10 ea.	50.00	10.00	10.00
101. Fur. and jack casing under RR fill	120 l. f.	25.00	100.00	30.00
102. C.I. pipe, under RR	53,000 lb.	.10	.05	.04
103. Manholes, complete	12 ea.	100.00	200.00	100.00

MISSISSIPPI RIVER BRIDGE

OWNER: City of Greenville, Miss.: engineers, Ash-Howard-Needles & Tammen, New York and Kansas City, Mo.

PROJECT: Contract No. 3: embankment; contract No. 4, substructure of viaduct spans for the $4,528,000 Mississippi River bridge to be constructed across the Mississippi River 8 miles south of Greenville, Miss.

CONDITIONS: Transportation by rail, highway and water is available. Labor rates are as follows: skilled, 75c. per hr.; semi-skilled, 45c. per hr.; common, 25c. per hr.

LOW BIDDERS: Contract 3:

1. W. G. Cook, Forest, Miss. (contract)..... $77,500
2. Doulette & Ewin, New Orleans, La..... 83,600
3. Uvalde Construction Co., Dallas, Texas..... 86,878

PROJECT No. 3

Item	Quan.	Unit Prices (1)	(2)	(3)
1 Embankment	140,000 c.y.	$32.5	$0.34	$0.39
2. Concrete riprap	5,000 s. y.	3.90	4.40	3.95
3. Concrete cul pipe	200 l. f.	4.00	4.00	3.39

LOW BIDDERS: Contract 4:

1. F. V. Ragsdale Co., Memphis (contract).....$534,300
2. W. L. Sharpe Construction Co., Memphis.... 556,200
3. Baggett Construction Co., Memphis..... 593,880

PROJECT No. 4

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Conct. footings and piers	4,900 c. y.	$19.00	$20.50	$16.00
2. Concrete abutments	5,000 c. y.	19.00	20.00	23.50
3. Conct. underpass and retaining walls	800 c. y.	19.00	20.00	25.00
4. Reinforcing steel	780,000 lbs.	0.0425	.045	.0425
5. For foundation piles in piers and abutments	3,900,000 lbs.	.042	.043	.046
6. Foundation piles for bents	94,000 l. f.	1.35	1.50	1.27
7. Grading	60,000 c. y.	.25	.30	.40

Bridges, etc. (Continued)

Bldg., Falconer, G. B. Saxton, superv., sanitary sewerage sys. throughout West Ellicott to tie-in with disposal plant of village of Celeron now under construction. Est. over $25,000. C. E. Elmendorf, 56 Elmdorf Ave., Rochester, engr.

N. Y., Niagara Falls—Sewers Buffalo Ave., 65, 66 Sts. etc. Over $50,000.

Pa., Erie—8 in. tile sanitary sewers, Elmwood and Melrose Aves. Est. $25,000. A. N. Aitkin, City Hall, city engr.

Tex., San Antonio—M. Maverick, mayor, H. Hein, comr. Sewers, imprv. at Michell Lake sewage dumping area. $40,000.

Ont., Peterborough—City Clerk bids soon incinerator. $30,000. R. Parsons, Peterborough, engr.

★**Que., Montreal**—Sewage pump. sta. Wellington St. $1,250,000. J. E. Blanchard, City Hall, dir. P. Wks.

Que., Westmount—P. G. Dalgado, engr., City Hall, ¼ mile sewer Western, Kensington and Oliver Aves. $300,000.

BIDS ASKED

Bids Asked August 14

N. Y., Brooklyn—President Brooklyn Boro, Boro Hall, combined sewer E. 26 St., storm water and sanitary sewers Kimball, Coleman, Hendrickson, Ryder, E. 38, E. 37, E. 36 Sts., Avenues S, Fillmore, R, P, and Quentin Rd.

Bids Asked August 16

N. Y., St. George—President Richmond Boro, Boro Hall, sanitary sewer, Hylan Blvd., Brielle Ave., incidental work, etc.

R. I., West Warwick—Town, E. J. Mailloux, sewer committee, Town Hall, Contr. #8, sanitary sewers, E. Main, Main, Ames, Le Valley, St. Pleasant, Highland, Douglas, Sisson, Parker, Wakefield, Bettez, Knight, Westley, Smith, Harmony, Oak, and Clyde Sts., Fairview, Summit, Phenix and Maple Aves. Est. over $25,000. Jenks & Ballou, 2600 Industrial Trust Bldg., Providence, engrs. PWA.

Bids Asked August 21

Mass., Fall River—A. W. Slater, chn. comn., rubbish incinerator. $150,000. Extended date. S. M. Ellsworth, 12 Pearl St., Boston, engr. CD 7/25—ENR 7/27.

N. Y., Tonawanda—City Clerk, City Hall, miscellaneous sewers and drains; PWA; C. S. Warren, mayor; adv. ENR 8/10.

Bids Asked August 24

N. Y., Jamaica—Dpt. P. Wks., Municipal Bldg., New York, Contr. 4, tanks and equip. and Contr. 5, piping, both for Jamaica sewage treatment works, Sect. 3.

Bids Asked August 29

★**Ind., Gary**—Bd. Sanitary Comrs., B. Phelps, secy., City Hall, Div. A, Contr. 6, Sect. 1, Pierce St. interceptor. $785,000. PWA. C. Cole, 515 Bway., Gary, and 220 W. La Salle St., South Bend, consult. engr.

Bids Asked August 31

Ind., Hammond — Sanitary Dist., J. E. Haney, chn., City Hall, Div. 7(a) sewage treatment plant and interceptor sewers, battery 4 aeration tank units, 4 circular final settling tank units, main power building for sewage treatment plant. PWA. C. Hurd, 1039 Architect & Builders Bldg., Indianapolis, consult. engr.

CONTRACTS AWARDED

Calif., Dixon — Sewage tr. plant, to R. B. McNair, 3745 Rhoda Ave., Oakland, **$18,798.** CD 9/30.

Calif., San Francisco—S. J. Hester, secy. Dpt. P. Wks., sewage tr. plant, at Hassler Health Home, near Redwood City, to M. Smith, 585-23 St., Oakland, **$66,475**, est. $70,000. Bids 7/26. CD 7/11—ENR 7/13.

Calif., San Jose—J. J. Lynch, city clk., constructing storm sewerage sys. in Willow Glen Areas, to California Concrete Products Co., 1700 S. 1 St., Raggio Concrete Pipe Co., 674 Stockton Ave. and San Jose Concrete Pipe Co., 580 Stockton Ave., joint bid. **$43,182.** Bids 7/31. CD 7/26—ENR 7/20.

Ill., Rock Island—Sewage disposal plant to Stark Bldg. Co., Box 369 Cedar Rapids, Ia. **$486,738.** CD 7/21—ENR 7/27.

Ill., Virginia—Sewage disposal plant auxiliary equipment, piping, appurtenances and sanitary sewers, **WPA. $100,000.** CD 6/16—ENR 6/22.

★**Ind., Fort Wayne**—Bd. P. Wks., R. G. Beams, chn., City Hall, Contr. 14, sewage treatment plant, to Charles R. Wermuth & Son, Inc., 1036 St. Marys St., **$1,197,708.** Bids 7/31, awarded 8/1. CD 8/3.

Ind., New Castle—Bd. P. Wks., Hosea Dist. Exten. sewage treatment plant, sewerage sys., to J. R. Palmer, Danville, Ill., **$50,013. PWA.** Awarded 8/1. CD 6/16—ENR 6/22.

Ind., Versailles—Sewage treatment plant and water sys., to Northern Constr. Co., 1812-4 St., Jackson, Mich., **$101,480.** Bids 6/9 awarded 7/26. CD 5/26—ENR 6/1.

Ia., Cedar Rapids—Repairs to sewage disposal plant, intercepting screen house, to A. J. Smith Constr. Co., 509½ 3rd Ave. S. E., Cedar Rapids, **$1,653.** CD 7/18—ENR 7/20.

Ia., Spencer—30 blocks of sewers, **WPA.** Over **$25,000.** CD 3/14—ENR 3/16.

Mass., Gloucester—Sewerage Bd., City Hall, Contr. 1, pump sta., to L. Palelli, 6 Andrews St., **$10,025**; Contr. 2, equip. to Ralph P. Hall, Inc., 141 Milk St., Boston, **$4,075.** Bids 7/20. CD 7/11—ENR 7/13.

N. Y., Celoron—Village, sanitary sewers, laterals, various streets. **WPA.** Over **$50,000.** CD 4/17—ENR 4/20.

N. Y., Endicott—Additional storm sewers, June St., Dwight Ave., etc. **WPA. $33,000.**

N. Y., Schenectady—Additional 96 in. pressure outlet sewer for Cowhorn Creek, with gravity storm sewers. **WPA.** Over **$100,000.**

Okla., McAlester—Sewage disposal plant, Imhoff tank with sludge bed and pump station. **WPA. $81,000.** G. M. Brown, McAlester, engr.

Pa., Erie—Sanitary sewers, vicinity of 38 St. and Elmwood Ave., additional storm and sanitary sewers, various streets. **WPA** under supervision C. K. Pulling, deputy city engr. Est. 25,000 plus. A. N. Aitkin, city hall, city engr. CD 7/12—ENR 7/20.

Pa., Reading—Storm sewers, 18 Ward, Hampden Heights, Glenside and Neversink Mountain Area. Own forces. **$40,000.** R. S. Chubb, City Hall, city engr. CD 7/13—ENR 7/20.

Ont., Hamilton—A. McFaul, engr., City Hall, sewers, Dundurn St., day labor. **$85,000.**

Que., Montreal—J. A. Blanchard, dir. P. Wks., 3rd section Molson Creek Collector Sewer, to Northern Constr. Co. and J. W. Stewart Ltd., 1010 Ste. Catherine St. W., **$284,000.** D. B. Lamarche, 403 City Hall, engr.

BRIDGES, GRADE CROSSINGS

PROPOSED WORK

Iowa—State Hy. Comn., Ames, 2 concrete box culverts County Trunk Rd. P. from Pella S.W. FAS 179 A. Marion Co. 150x22 ft. continuous I-beam bridge, 40x22 ft. I-beam bridge and 3-32x22 ft. multiple span I-beam bridge, County Trunk Rd. D. between S.H. 148 and Page Co. Line, FAS 241 A. Taylor Co. 150x22 ft. continuous I-beam bridge, County Trunk Rd. G. between Sects. 10 and 15 T67N R35 W, FAS 240 A. Taylor Co.

Iowa—State Hy. Comn., Ames, 1 concrete box culvert, S.H. 35, from Arthur to Sac County Line, FA 80, Ida Co.; 4 concrete box culverts, S.H. 35, from Ida Co. Line east to Odebolt, FA 746 B, Sac Co. F. R. White, ch. engr.

Iowa—State Hy. Comn., Ames, 120x22 ft. continuous I-beam bridge and 6x28 ft. concrete slab on treated piling County Trunk Rd. J. from Savanah E. and North FAS 550 B. Davis Co. 1 concrete box culvert and 4 concrete box culvert extensions, County Trunk Rd. H. from S.H. 10 North into Tripoli FAS 207 A. Bremer Co. 4 concrete box culverts and extensions, County Trunk Rd. K. from Frederika S. to S.H. 93, FAS 206 A. Bremer Co.

N. Y., Lockport—City and Hy. Dpt., Niagara Co., Lockport, replacing bridge over Creek and widening, straightening approaches. Over $25,000. Maturity soon.

O., Mansfield—Westinghouse Electric & Mfg. Co., Mansfield, 1,000 ft. industrial bridge connect the Westinghouse main plant with plant of Mansfield Vitreous Enamel Co. controlled by Westinghouse, **$135,000.**

Oklahoma—State Hy. Dpt., Oklahoma City, 640 ft. I-beam bridge over Arkansas River near Ponca City, Kay Co., $400,000; 420 ft. I-beam bridge at Pine City, Le Flore Co., $39,000. V. T. Moon, Capitol, Oklahoma City, engr.

Okla., Arapahoe—State Hy. Dpt., Oklahoma City, 520 ft. I-beam bridge over Washita River, near here, Custer Co. $48,000. V. T. Moon, Capitol, Oklahoma City, engr.

Pa., Allentown—Comrs. Lehigh Co., Court House, steel, concrete highway bridge over Little Lehigh River. Est. $73,395. Bids in October or November. J. F. Sieger, Court House, co. engr. CD 6/14—ENR 6/22.

Pa., Bangor—Boro, D. O. Pritchard, boro engr., Delaware, Lackawanna & Western R. R., G. A. Phillips, ch. engr., Hoboken, N. J., L. L. Tallyn, ch. engr., Scranton Div., Scranton, and State Hy. Dpt., Harrisburg, G. E. Handwerk, Allentown, dist. engr., eliminating 2 grade crossings at S. Main and Washington Sts. Over $100,000.

Pa., Sugarloaf Twp.—Comrs. Luzerne Co., Court House, Wilkes-Barre, postponed bids to have been taken Aug. 10, until fall, 544 ft. steel, concrete highway bridge, bituminous on native stone base paving, portion, Fern Brook-DeMunds Co. hy., Dallas Twp. Est. $26,000 plus. Luzerne Co. Engineering Dpt., Wilkes-Barre, engrs. CD 7/5—ENR 7/13.

Ont., London—Bridge, King St. Est. $75,000. Bylaw to be voted on in December. W. Veitch, City Hall, engr.

Ont., London—W. Veitch, engr., City Hall, vote by-law December, steel, concrete bridge, Adelaide St. $35,000. CD 3/8—ENR 3/16.

Ont., St. Thomas—Reconstructing subway under New York Central R. R. tracks, Ross St. Est. $65,000. W. C. Miller, City Hall, engr.

★**Ont., Toronto**—Secretary Bd. Control, Toronto, bids soon, various subways, overhead bridges, etc. $500,000. Dominion Government, Ottawa, advanced $500,000 for project. R. C. Harris, Toronto, engr.

Que., St. Barnabe—Provincial Government, Quebec City, 24x120 ft. rein.-con. bridge over Bournival River. $40,000. O. Desgardines, Dpt. P. Wks., Quebec City, engr.

BIDS ASKED

Bids Asked August 17

O., Cleveland—C. B. Patterson, purch. agt., Contr. 26 Columbus Rd. bridge north approach paving. $40,000. G. B. Somers, 517 City Hall, engr.

Bids Asked August 18

Idaho—H. R. Flint, acting Comr. P. Wks., Boise, concrete bridges, grading, draining, crushed gravel surfacing 1.406 mi. Yellowstone Park Hy. between Lorenzo and Sugar City, Madison Co.

Minnesota and North Dakota — Minnesota State Hy. Dpt., c/o County Auditor Marshall Co. at Warren, constructing Interstate Bridge 5872, two 200 ft. high truss spans with rein.-con. deck slab, about 15 mi. southwest of Stephen, Marshall Co., Minn., and 12½ mi. east Grafton, N. D. Over $25,000.

N. Y., Tottenville—H. A. Lane, chief engr. Baltimore & Ohio R.R., B. and O. Central Bldg., Baltimore, Md., at office of Assistant Engineer, Staten Island Rapid Transit Railway Corp., Springstead Bldg., Great Kills, grade crossing elimination; est. $75,000; PWA; adv. ENR 8/10.

Tex., Angleton—Brazoria Co., F. Enlow, judge, bridge approaches to bridge under construction. $35,000. J. G. McKenzie, 1424 Marshall St., Houston, engr. CD 8/1—ENR 8/3.

Bids Asked August 21

N. Y., Elmira—R. Klebes, city mgr., City Hall, concrete walls, approaches, Madison Ave. bridge over Chemung River; est. $30,000; PWA; Robinson & Steinman, Engineers, 117 Liberty St., New York, engrs., Haskell & Considine, 612 Hulett Bldg., archts.; adv. ENR 8/10. CD 6/29—ENR 7/6.

Bids Asked August 22

Wisconsin—State Hy. Comn., Madison, concrete box culvert 1415, Cassville-Potosi Rd. Matzell Bridge and Approaches Rd. County Trunk Hy. O. FAS 629 B. Grant Co. Bridge 629 extend 30 ft. span rein.-con. deck girder and bridge 636 30 ft. span concrete and steel superstructure, on timber abutments, Ellsworth Baldwin Rd. U.S. Hy. 63, St. Croix Co. two rein.-con. deck girder overheads, Milwaukee, Plymouth, Green Bay Rd., U.S. Hy. 141, Saukville Rd., Ozaukee Co.

CONTRACTS AWARDED

Calif., Covelo—Mendocino Co., M. A. Carpenter, co. clk., Ukiah, 180 ft. steel span bridge, incl. one 4 panel and one 2 panel timber approach over Eel River, Covelo-Mina Rd., 20 mi. north of here. Day labor. Former bids rejected. CD 7/24—ENR 7/27.

Ill., Geneva—Kane Co., 3 span rein.-con. steel viaduct across Illinois Central R. R. tracks, to Illinois Hydraulic Stone & Constr. Co., Elgin, **$18,347.** Bids 7/20. CD 7/11—ENR 7/13.

★**Ill., Winnetka**—Bd. Local Imprv., City Hall, track work for grade separation project, to Deckert & McDowell, 53 W. Jackson Blvd., Chicago, **$589,649**; subway superstructure and retaining walls, to Suburban Paving & Imprv. Co., 140 N. Dearborn St., Chicago, **$214,255.** C. DeLeuw, 20 N. Wacker Dr., Chicago, engr.

Iowa—State Hy. Comn., Ames, 8 concrete box culverts, Appanoose Co., to Hughes & Easton, 310 Park Ave., Council Bluffs, **$4,181**, 195x24 ft. continuous I-beam overpass, etc., Floyd Co., to F. O. Montgomery Co., Humboldt, **$24,248.** Bids 7/25. CD 7/13—ENR 7/20.

Ia., Denver—Bremer Co., H. J. Stumme, co. aud., Waverly bridge, to Waugh & Tackman, Clarksville. **$13,143.** Bids 7/24. CD 7/28.

Ky., Louisville—State Dpt. Hys., Frankfort, 7th St. and Magnolia Ave., grade separation, here, to Henry Bickel Co., 435 Garden St. **$399,413.** Bids 7/28, awarded 7/31. CD 7/11—ENR 7/13, under "Kentucky."

Maine—State Hy. Comn., L. D. Barrows, ch. engr., Augusta, Emerson Bridge over Strout Stream, Milbridge, to E. C. Hanna, East Sullivan, **$4,013***Outled Rd. bridge over Vaughn St., Hallowell, to V. E. Dunn & Son, 167 Sewall St., Augusta, **$3,903**; plate girder bridge, gravel surfacing 2.56 mi. Rt. Vassalboro, to Wyman & Simpson, Inc., 284 Water St., Augusta, **$125,246.** Grand total **$133,162.** Bids 7/26 and 7/27, awarded 8/1. CD 7/20.

Michigan—State Hy. Dpt., Lansing, 293 ft. bridge, Genesee Co., to L. A. Davidson, 213 E. St. Joseph St., Lansing, **$204,424***126 ft. bridge, Grand Traverse Co., to Johnson & Greene, Whitmore Lake, **$43,056***removing existing bridge and constructing rein.-con. and steel superstructure, Ontonogon Co., to John K. Jackson, RD 1, Ironwood, **$6,[illegible]**, ***80 ft. bridge, Clinton Co., to E. J. Vander Veen, Plainfield Rd., Grand Rapids, **$11,[illegible]**. Grand total $346,041. Bids 7/26.

Minn., La Crescent—State Hy. Dpt., St. Paul, Bridge 5475, to Industrial Contg. Co., 3050 4 Ave. S., Minneapolis, **$66,832.** Bids 7/14. CD 6/28—ENR 7/6.

Minn., Rochester—Olmsted Co., bridge, to L. M. Feller Co., Rochester, **$24,216.** Bids 7/28. CD 7/26.